Corporate governance and firm performance: the case of UK.

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A thesis submitted in fulfilment of the requirement for the degree of Doctor of Philosophy

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JULY 2014

Acknowledgment

My appreciation goes to Richard Trafford, my supervisor, for his encouragement, support, time, and valuable comments on this study. I am very grateful for the opportunity to work with him as have learned a great deal from his knowledge and experience.

I would like to thank Professor Michael Page for his comments and feedbacks on this study which were very helpful.

I would like to express my indebtedness to the Al Tajer Trust, which provided me with all the assistance and financial support for my scholarship.

I am grateful to all my family and friends, especially Mr Brian Johnson, for kindly supporting me during my stay and study at University of Portsmouth.

Finally, many thanks go to all staff members and the faculty research team at Portsmouth Business School for their help during the completion of this thesis.

Declaration

"Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award".

Signature……..

Date……..

Abstract

The subject of corporate governance and corporate performance has been widely discussed and examined over the last two decades. A great deal of change has developed within British Boardrooms since the emergence of the Cadbury Committee Report in 1992. UK Corporate Governance reforms over the years have been consistently developed where an increase in the number of non-executive directors on board, their roles and their effectiveness, was evident throughout the development of these reports. For instance, the Cadbury Report set a minimum of three non-executive directors for each company. Also, the independent non-executive director has become the catalyst for better performance since it has been recommended by the 1998 Combined Code that at least one-third of the board is to be independent and increased to half by the 2003 Combined Code. Although it has been evident that the level of compliance by companies has increased, the relationship between firm performance and corporate governance has been mixed and inconclusive in previous research. A large number of empirical works found no clear link between firm performance and corporate governance. There is an argument posited by scholars that better firm performance is achieved in well-governed firms. Therefore, the main question addressed in this thesis is whether a relationship exists between internal corporate governance mechanisms and performance of FTSE All shares non-financial firms listed on London Stock Exchange for a period 2005 to 2010. It specifically looks at the link between firm performance (measured as Tobin's Q and Return on Assets (ROA) and board characteristics (board size, independent directors, CEO duality and Audit committee), managerial ownership, executive remuneration and financial policies (Debt and Dividend) as governance mechanisms. This

study will draw upon the agency theory to test whether the hypothesised relationships exist between firm performance and corporate governance mechanisms in the UK.

Ordinary Least Square (OLS) regression analysis produced mixed results. According to OLS regressions, the results provide some evidence of a relationship between some governance mechanisms and firm performance. In general, based on market measures (Tobin's' Q), some governance mechanisms (independent directors, board size (apart from in 2006), role, managerial ownership (apart from in 2008), executive remuneration and debt (apart from in 2005)) positively relate to firm performance, while audit (apart from in 2010) negatively relates to firm performance. However dividend pay-out produced mixed results. Based on accounting measures (ROA), independent directors (apart from in 2010), role (apart from in 2006), managerial ownership and executive remuneration positively relate to firm performance. Board size, audit and debt negatively relate to firm performance. However, dividend pay-out produced mixed results. Further analysis using two-stage least square regressions indicate that any causal effect runs from governance to firm performance rather than in the opposite direction. Overall, the findings of the research are period specific. Variables showing significant explanatory power at the start of the sample period may cease to be significant or change sign at the end of the sample period.

In the corporate world corporate governance has been a growing issue and it has contributed to becoming a key business discipline in the management of companies. This study contributes to the increasing number of research studies on the link between firm performance and corporate governance. The lack of clarity, mixed and permanent relationships provided, show that the association between performance and different governance is complex and dynamic: optimal governance arrangements may differ from firm to firm in relation to board characteristics.

1 Contents

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List of Abbreviation

OECD= Organisation for Economic Co-operation and Development

BCCI= Bank of Credit and Commerce International

AFC= Asian Financial Crisis

FTSE= Financial Times Stock Exchange

ISS= Institutional Shareholder Services

ICAEW= Institute of Chartered Accountants in England and Wales

FRC= Financial Reporting Council

LIST= London International Stock Exchange

GMM= Generalized method of moments

FCF= Free Cash Flow

IRRC= Investor Responsibility Research Centre

CSLA=Credit Lyonnais Securities Asia

SWX= Swiss Stock Exchange

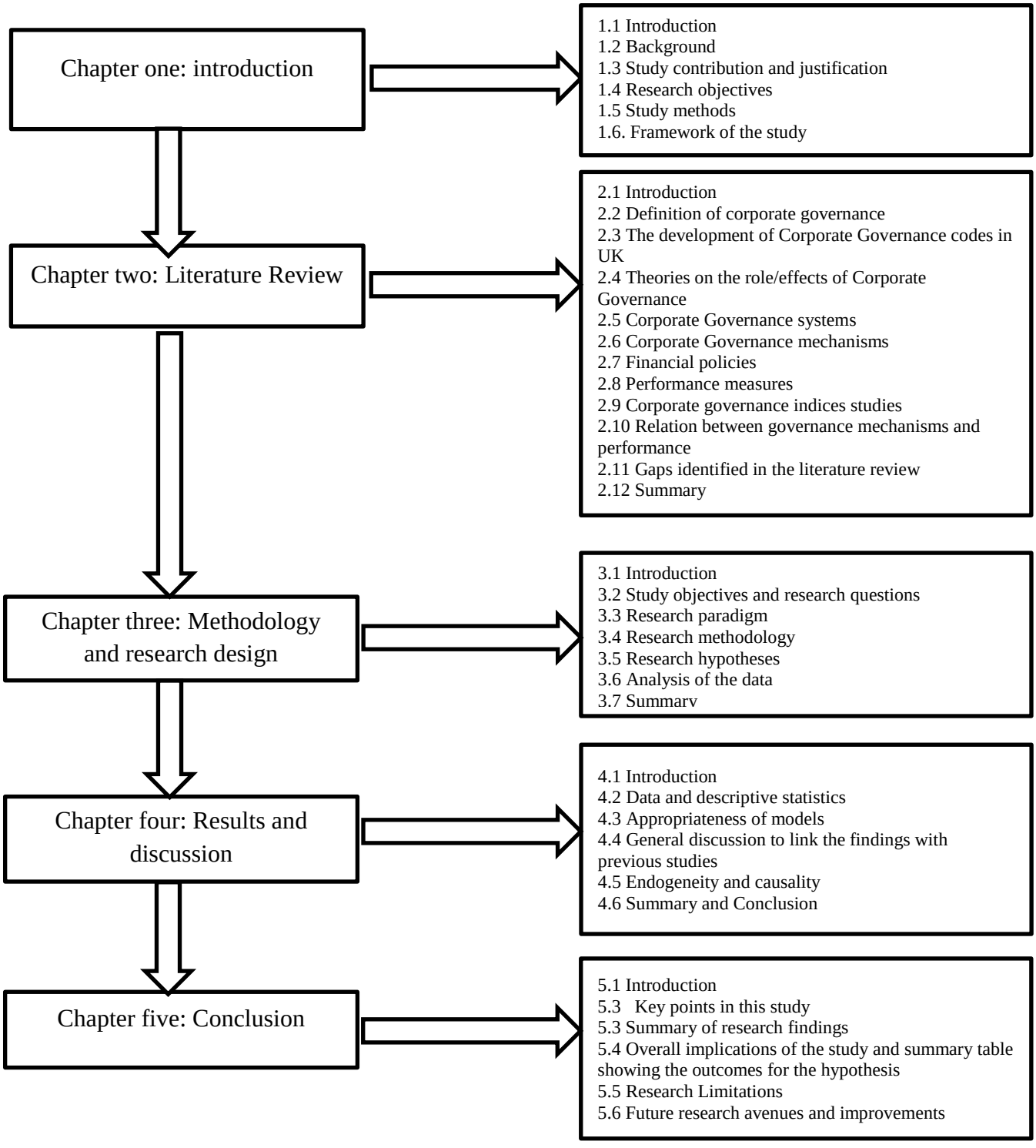
CGI= Corporate Governance index

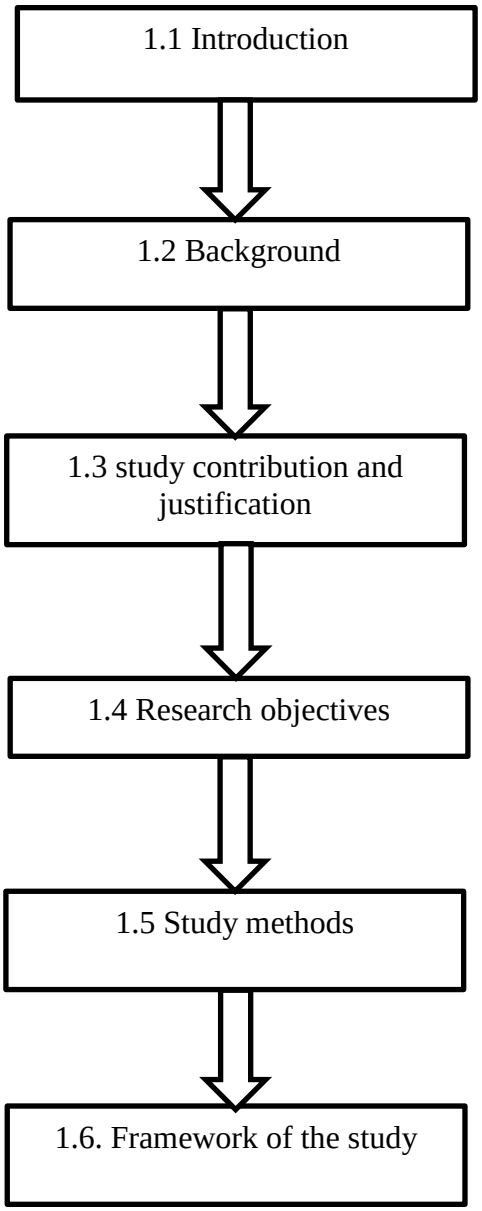
BICS= Industry Classification Benchmark

Q = Tobin's Q

ROA = Return on assets

Thesis structure





Chapter one Structure

2 Chapter one: Introduction

2.1 Introduction

The increasing pace of globalisation, the deregulation and integration of capital markets, the series of recent financial scandals in Asia and around the world, and the spectacular corporate collapses which took place in Europe and the USA (e.g. WorldCom, Enron, Parmalat and Xerox), have driven the previously strong debate on how to reduce the conflict between shareholders and managers and draw an efficient corporate governance system that will encourage sustainable economic growth. The growing importance of a strong corporate governance regulatory structure gathered momentum after the events aforementioned. Furthermore, corporate governance, whose primary goal is to deal with identifying potential mechanisms in which the shareholders of a corporation have more power and exercise control over the managers to protect their interests, has recently brought the acute attention of academics and policy makers around the world. As a response to such scandals, and as a primary approach of protection for shareholders and stakeholders, an explicit strategy has developed with respect to public listed companies adopting good corporate governance standards. In fact, listed companies in most major markets throughout the world are now required to adopt high corporate governance standards. This study will primarily examine the relationship between corporate governance mechanisms (board characteristics- size, independent directors, role duality, Audit, Executive Remuneration, executive directors shareholdings and financial policies- debt and dividend) with firm performance (represented by Tobin's Q and ROA) in the United Kingdom, based on quantitative methods. It is premised on the agency model, and a number of corporate governance mechanisms which are set up to decrease the agency costs connected with the separation of ownership and control (Jensen and Meckling, 1976; Fama, 1980; and Fama and Jensen, 1983). Internal corporate governance mechanisms have been the focus of several significant reports into the governance of UK companies, in particular those related to board structures and board subcommittees (Cadbury, 1992; Greenbury, 1995; and Hampel, 1998).

This study will cover the academic literature related to this topic and, in particular, review the corporate governance mechanisms literature, focusing mainly on the agency theory impact. The significance of this study academically and practically will be demonstrated and established through further discussion. This introductory chapter will present the study background, its objectives, importance and significance, and will conclude with some insights into the methods that have been used to address the research questions set.

2.2 Background

It is suggested that the premise behind modern corporate finance is that the division of control and ownership, which characterises a large number of medium-sized and larger companies, creates a setting where the shareholders and managers interests often deviate. Due to the presence of asymmetric information and less perfect contractual relations, managers tend to have incentives to prioritise their own goals over the interests of the shareholders. There are several forms which these incentives could take, including: 1) insufficient effort as such showing over-commitment to exterior activities and tolerating overstaffing, 2) entrenchment strategies as such make an investment in a series of projects that maintain the managers' roles and make them indispensable and constantly show resistance for hostile takeovers, 3) extravagant investment as such building empires at the expense of shareholders and engagement of pet projects, and 4) self-dealing as such using consuming perks to increase the managers' private benefits (Shleifer and Vishny, 1997 and Tirole, 2001).

The consequences of these divergences are referred to by recent scholars as agency costs. They are defined as the type of costs which are incurred to structure, monitor and bond the incentives contract between the manager as an agent and the shareholder as a principal. There is a considerable amount of empirical work conducted, following Jensen and Meckling (1976), which focusses on the adverse impact of agency costs on a broad range of decisions on the policy of the corporate and firm's value. The literature clearly documents, for example, that when the interests in firms are not impeccably aligned between shareholders and managers, these firms favour lower leverage (Datta et al. 1992), keep substantial amount of cash (Ozkan and Ozkan, 2004), select longer maturity debt, over-invest and display significant underperformance (Pawlina and Renneboog, 2005); (Core et al. 2006) and (Davies et al. 2005), and pay less dividends (Hu and Praveen, 2004).

Based on the hypothesised association that exists between firm performance and corporate governance, the study mainly draws upon agency theory to test the significance of this relationship in UK Listed companies. The utilisation of an agency theory framework is a catalyst not only to explain why such relationships could exist or occur but more that it provides the ability to explain how firm performance and value could be improved by applying these corporate governance mechanisms. Therefore, agency theory will assist in explaining the factors which affect firm performance and value, will help to understand why some variables could be relevant for testing, and why some patterns could or could not be obvious in the results.

The emergence of ideas regarding the effects of agency theory was basically due to the work of Berle and Means (1932) exploring the division of control and ownership in firms in the United States. They argued that a dispersion of equity amongst an atomistic spread of investors reduces control and switches power to the management team. Hence, management and shareholders have differing interests and therefore potential agency problems arise which bring conflict to the firm. This work has been extended by Jensen and Meckling (1976) who defined such problem as a principal-agent problem which could affect firm performance and value, where the principal is the shareholder and the agent is the manager. Also, they found another conflict came from the debt relationship between creditors and firms. Additionally, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997) found that additional significant agency problems occur between large shareholders and minority shareholders, especially in countries where shareholder protection is weak.

It is evident that there are a multitude of factors and conditions impacting upon the agency relationships in the firm. Taking these conflicts into consideration, rules and guidelines are needed to make sure firms are well governed and directed to achieve success and stability, as without such guidelines and regulations these conflicts will affect firm performance. For reducing agency problems, there are two kinds of governance mechanisms suggested by agency theory: external and internal mechanisms. The external mechanisms are: the market for corporate control, the legal system, and the factor and product market. Meanwhile, the internal mechanisms are: ownership structure, the firm‘s compensation, board of directors, and financial policies. Agency theory control mechanisms could bring all the needed protections as well as checks and balances in a firm’s operations; furthermore, more discipline is imposed by these mechanisms upon both shareholders and management. Several

studies in countries around the world have been studying the relationship between firm performance and corporate governance mechanisms, where the results of which clearly and significantly show that good corporate governance practices applied and followed would protect the shareholders, the position of the company financially and could also improve the value of the company or its performance. The literature chapter will discuss agency theory in detail and evaluate the substantial amount of work concerning the subject of corporate governance mechanisms and its impact on firm performance.

2.3 Study contribution and justification

In the corporate world, corporate governance has been a growing issue and it has contributed to becoming a key business discipline in the management of companies. Based on the above mentioned background, this current study will examine the relationship between firm performance and internal corporate governance mechanisms, with the aim to provide more insights into this topic, and contribute to the increasing amount of research on the link between firm performance and corporate governance. The lack of clarity, mixed and permanent relationships between performance and different governance show that this association (of performance and governance) is complex and dynamic: optimal governance arrangements may differ from firm to firm in relation to board characteristics.

There are a few elements that played a role in making the UK a particularly interesting case to study. Firstly, in the UK, listed company share ownership is fairly dispersed due to presence of law favourable to minority shareholders and the prevailing takeover code, which together do not encourage accumulation of capital. In the UK, the most important equity holders are mainly the financial institutions but there is clear evidence that some types of financial institutions are preoccupied with short-termism and, thus, there is not much added in corporate governance by them (Black and Coffee, 1994; Short and Keasey, 1999; Franks et al., 2001). Secondly, in the UK, boards of directors are characterised in general as corporate devices which cannot provide a strong disciplinary role mostly due to lack of strong powers that impose fiduciary duties on these directors. Thirdly, in the UK a serious discussion of corporate governance issues resulted from a wave of corporate failure in 1980s and 1990s, and a number of reports in the form of "codes of best practice" emerged as responses to such scandals as Cadbury (1992); Greenbury (1995); Hampel (1998) and Higgs (2003). Subsequently, it would be of considerable importance in the UK that the investigation of the impact of these internal corporate governance mechanisms on firm performance, in a period

after all these reports, responded to problems in corporate governance. In addition, given that the topic of corporate performance and corporate governance is still current and under research, therefore examining the impact of internal corporate governance mechanisms on corporate performance using both accounting (ROA) and market measures (Tobin's Q), serves as an additional practical insight, and could be relevant to associates such as market regulators and accounting professionals who are interested in improving corporate governance standards.This study differs from other empirical work in this field as follows:

- The selected period of the study (2005-2010) has been chosen to fall after all the major recommendations in the governance reports and reforms have been settled.
- A six year period has been selected to identify and analyse the evolution and impact of internal corporate governance mechanisms on firm performance using both accounting and market measures (Tobin's Q and ROA).

- The sample under study has been taken from the FTSE All shares non-financial firms listed on the London Stock Exchange across a six year period (2005-2010), with companies that survived more than three years being selected for the study.

- This study has used up-to-date and comprehensive data from Bloomberg; this data was crossed checked with the annual reports for 25 randomly selected companies from the sample to ensure its consistency, reliability and validity.

- All the internal corporate governance mechanisms (board characteristics: board size, independent directors, CEO duality and Audit committee, managerial ownership, executive remuneration and financial policies: Debt and Dividend) have been analysed in one regression model. The impact of all these mechanisms have been examined on firm performance using both accounting and market measures (Tobin's Q and ROA).

2.4 Research objectives

To reiterate, the main aim of this work is that of examining the impact of corporate governance mechanisms, namely: the characteristics of board; its size, independent directors,

Audit, role duality, Executive Remuneration, executive directors' shareholdings and financial policies; debt and dividend on the performance of firms in UK. The following research questions and objectives are mainly tested and examined in this study; particularly, the study investigates:

1 How does managerial ownership affect firm performance?
2 How does the presence of independent directors affect firm performance?
3 How does board size affect firm performance?
4 How does the separation of the CEO and board chair positions affect firm performance?
5 How does the presence of Audit Committee affect firm performance?
6 How does executive remuneration affect firm performance?
7 How does debt affect firm performance?
8 How does dividend policy affect firm performance?

2.5 Study methods

Quantitative method is the empirical approach used in this study. The quantitative methods are mainly OLS and 2SLS regressions analysis, where secondary data are gathered and collected to achieve the main goals and objectives of this work. Results are analysed using regression methods for quantitative data. The following table illustrates the data description and sources used in this study.

Table 2.1 Data Description and sources

Source of data	**Types of data**	**Specific information**
Bloomberg and annual Reports	Board characteristics, directors ownership and directors remuneration	Board size, Independent directors, CEO Duality, Role, Audit Committee and number of shares owned by directors and executive and non-remuneration remuneration
Bloomberg and annual reports	Financial Policies (Debt and dividend), firm size	Total debt, Earnings Per share, Dividend per share and Total assets

2.6 Framework of the study

After this introduction chapter the rest of the study is divided into five chapters. The literature review will provide an outline of the theoretical framework of corporate governance; it reviews the related academic literature discussing the association between corporate governance mechanisms and firm performance. It also examines the potential interrelationship among the corporate governance mechanisms. Although several studies have been done and covered the subject of corporate governance and firm performance, a reasonable confusion still exists as to whether any particular set of governance mechanisms collectively or separately are able to protect or increase shareholder's wealth. For example, a consensus has not yet been reached on the precise impact of managerial ownership on the value of a firm. Also, previous studies overlook significant aspects of the compensation structure and capital, in particularly managerial compensation and short-term debt, which could have the potential to work as crucial governance devices. The agency theory and principal-agent problem were covered and discussed, also the following internal governance mechanisms, board of directors, managerial ownership, executive remuneration and financial policies (debt and dividend), were presented and analysed both theoretically and empirically. Chapter three is the research methodology chapter where the eight hypotheses, research design and data are discussed. Consequently, the two methods used and the rationale for choosing the research methods used in the study are presented. In addition, the chapter introduces the analysis methods applied for each method and explains how the research methods were designed. The study uses two techniques, which are discussed in Chapter 4. In addition, Chapter 4 reports all the findings on the impact of internal corporate governance mechanisms on firm performance measured by those of the market (Tobin's Q) and accounting measures (ROA). Findings from the Ordinary Least Square (OLS) regression analysis produced mixed results. In general, based on market measures (Tobin's' Q), some governance mechanisms (independent directors, board size (apart from in 2006), role, managerial ownership (apart from in 2008), executive remuneration and debt (apart from in 2005)) positively relate to firm performance, while audit (apart from in 2010) negatively relates to firm performance. However dividend payout produced mixed results. Based on accounting measures (ROA), independent directors (apart from in 2010), role (apart from in 2006), managerial ownership and executive remuneration positively relate to firm performance. Board size, audit and debt negatively relate to firm performance. However, dividend payout produced mixed results.

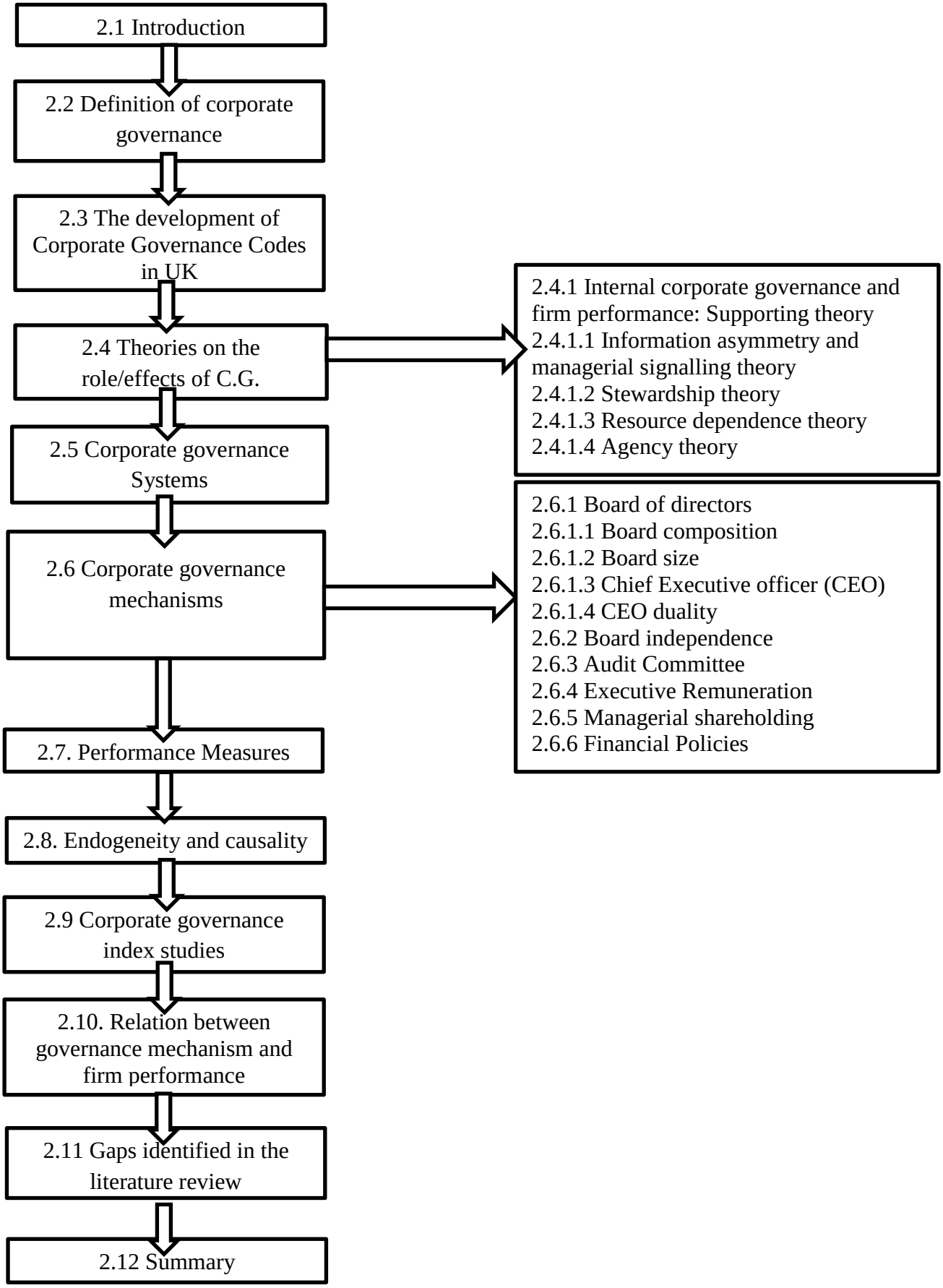


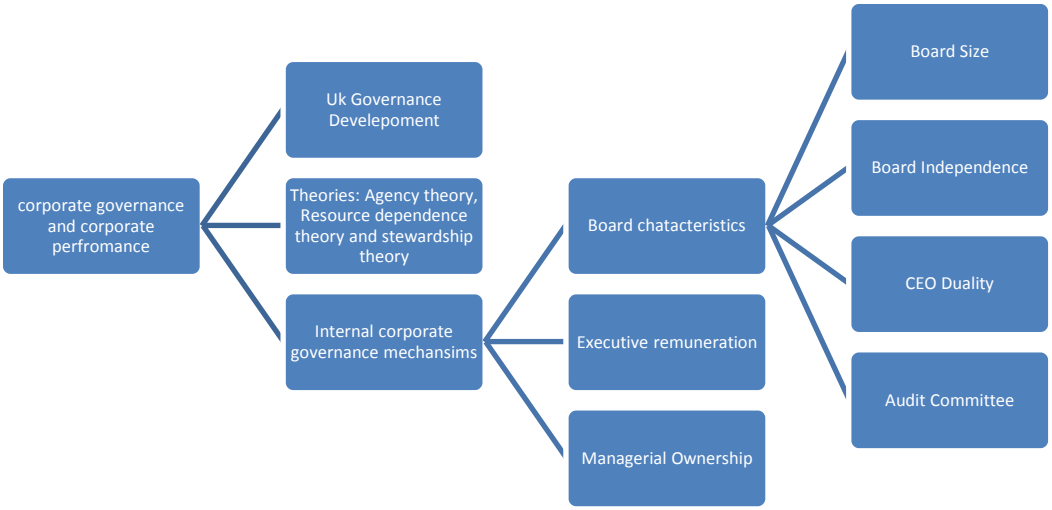
Figure 1 Diagram of chapter two

3 Chapter two: Literature review

3.1 Introduction

The usual approach adopted when undertaking a literature review is to attempt to identify all the writings which might possibly fall within the area of interest and then to describe the main thrust of the discussion as a temporal sequence of arguments. Identifying the principal authors and papers by "backtracking" from a known, recent, contribution to the literature is efficient and this has been the case in this study. Also, creating an effective, structured and comprehensive literature review relies on the identification of themes and issues based on a general sampling of the literature. Thus an inductive approach has been followed in reviewing the literature based on the concept of Papineau's tree. This concept focuses on descending order of core terms to demarcate those terms which are central to all researchers within a programme (Ryan, Scapens, Theobold, 2002). Also his concept of the hierarchy of core terms is considered to be useful in this study for understanding the development of a particular literature (Vladu, Matis and Salas, 2012). They stated that the importance of summarizing the internal body of the literature using Papineau's tree (1979) is indisputable since particular contributions can be identified more easily and can be comprised in a well-known framework in order to rationalise the existing literature. The main idea of Papineau's (1979) was to develop according to what it is stated before hierarchy of core terms within a literature with the scope of identifying the particular contributions that can be placed and based on that. The following figure symbolises Papineau's tree.

Figure 2 Papineau's Tree



The field of corporate governance originates mainly on the fundamental insight where potentially some issues are found with relation to the division of ownership and control bound as they are in the making of the modern corporate shape of the organization. Therefore, the role of corporate governance is to hold the existing market and institutional mechanisms that support the managers who are the controllers and self-interested to work on behalf of the shareholders, who are the owners in maximising the value of the firm. Systematic studies in this field only started twenty five years ago (Denis, 2001). Corporate governance practices have accordingly grown and evolved significantly in the last two decades.

Within all the work that has been done on corporate governance, there is a common fact that all the papers point out is a central or essential theoretical perception that refers back to the work put down by Adam Smith in 1776. In his writing about professional managers in his book *Wealth of Nations*, he stated that: "Being the managers of other people's money [rather than their own] … it cannot be expected that they should watch over it with the same anxious vigilance ….". The work of Berle and Means in 1932 went further and suggested that the corporation becomes an indefensible form of organization due to this problem.

It is not viewed as a coincidence that corporate governance issues came to the surface in the UK in the 1980s at a time which paralleled similar issues in the corporate and financial markets around the world. For instance, the market for corporate control in the US was causing major issues in the company sector. But in Asia, the crisis in the capital market in 1997-1998 impacted countries such as Malaysia and Thailand which were recently industrialising. The crisis raised some significant critical questions regarding the corporate governance standards in these countries. In the UK, there were some headlines raised due to major corporate fraud and failures where a sharp public scrutiny imposed upon big companies such as Maxwell Corporation and its proprietor Robert Maxwell. As a result, the introduction of the UK code of corporate governance in 1992 was precipitated by several of the big companies' failures of the late 1980s. To a large extent, failures were considered as governance failure where the board failed and did not perform effectively its duties and functions. Platt and Platt (2012) observe that maintaining a firm's survival is the most critical responsibility of boards. They also contend that the importance of this board mandate is clear in the post 2007-08 financial crisis and in high profile failures worldwide. Consequently, the press, investors' community and politicians worldwide are calling for corporate governance

reforms to strengthen the effectiveness of boards and its committees, and in this manner, reduce the likelihood of firm's failure (Zaman, Hudaib and Haniffa, 2011).

Since launching the Cadbury Code in 1992, the UK has contributed to the debate and practice of governance characteristics. Thus, it was with this underlying assumption of "code of best practice" in corporate governance, which the Cadbury Committee put forward, that led reforms for the corporate board and that was the case as the large section of its recommendations were clearly directed at it. In addition, Cadbury (1992) triggers governance reforms worldwide, due in part to the use of its key proposals as benchmark of good governance (Brennan and Solomon, 2008; Aguilera and Cuervo-Cazurra, 2009).

Although, the issues of corporate governance have recently attracted critical attention from academic institutions, policy makers and regulators, the research into how public companies are managed and controlled is not new, as can be seen in the early work by Berle and Means (1932), discussing the separation between ownership and control. A number of seminal regulatory reports have evolved and dealt with a variety of aspects relating to governance of the companies such as, its shareholders, board of directors and a variety of other stakeholders. The main purpose of corporate governance is to maximise shareholder value in using effective, efficient and entrepreneurial management (Lazonick and O'Sullivan, 2000a). However, it has been well documented that the relationship between corporate governance and corporate performance is mixed and, therefore, researchers are still conducting various tests to examine such relationships by using different dimensions of corporate governance with different measures of performance to scrutinize the significance of the relationships between them.

The Cadbury Code of Corporate Governance, which reforms the basis of UK Corporate Governance Code, has attracted not only academics but also industrial research. Research within this context was aimed to gauge the extent and form corporations comply with the Code, particularly its board-related recommendations. The survey reported in Dedman (2002) confirms that boards were becoming more balanced in terms of their division of power and responsibilities. Separate positions of CEO and chairman are in place with more non-executive directors and independent non-executive directors are instructed to provide a critical voice on the board. Moreover, the board responsibilities are becoming clearly defined and divided, with properly constituted board subcommittees, namely: remuneration, audit,

and, increasingly, nomination committees. In this chapter, the definition of corporate governance is drawn, the recent developments in the UK's regulatory reports and the consequent reforms are reviewed, the agency theory is presented, corporate governance systems are covered, corporate governance mechanisms are explained and their potential effect on firm performance is discussed. After that, performance measures used in the literature are presented, the issue of endogeneity and causality in corporate governance is highlighted and, finally, a summary to briefly address the literature review issues will be examined.

3.2 Corporate governance definition

The subject of corporate governance has witnessed great interest in the current global business environment. It compromises a wide range of regulations and practices under which the managers of the firm is responsible to achieve success within the legal compliance framework and realistic objectives. There are different ways to define corporate governance, whether through some narrow definitions that focus on companies and their shareholders, or within broader definitions that include the accountability of companies to many other stakeholders.

It has been argued that the definition of corporate governance has not been set in solitary or unified definition, and thus the definition applied depends on the cultural, political, economic, and the legal system of the countries in which they are located and operating in (Salacuse, 2002), but some authors have worked to clarify this concept. However, all the definitions address the main elements, such as systems of control inside the company, relationships between the company's stakeholders, and transparency and accountability to help the users of information. The following different definitions illustrate that, whilst the definitions vary, the same original ideas are present. Corporate governance is defined by the Cadbury code as "*the system by which companies are directed and controlled*". Meanwhile, it is defined as a set of mechanisms that could be used by external investors to defend their interests and rights against the insiders, e.g. managers and controlling shareholders (La Porta, Lopez-de-Silanes, Shleifer, 2000).

The OECD (2004) defines it as: *Corporate governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance provides the structure through which the objectives of the company*

are set, and the means of attaining those objectives and monitoring performance are determined. Good corporate governance should provide proper incentives for the board and management to pursue objectives that are in the interest of the company and its shareholders and should facilitate effective monitoring". In addition, Banks (2004) defines it as the framework followed and applied in a corporation on behalf of its stakeholders and shareholders. These definitions of corporate governance demonstrate the broader level that is based on the congruency of objectives between the management of the company and its stakeholders.

Following this narrow perspective, corporate governance is related to the return on investment (Shleifer and Vishny, 1997). It is defined as assuring that the creditors to corporations and the investors gain the return on their investment. In addition, corporate governance is defined in relation to another theory that influences the corporate governance debate which is agency theory. Agency theory focuses on principal-agent relationship rather than a broad range of stakeholders. These following definitions take the view of agency theory. '*Corporate governance is the manner in which organisations, particularly limited companies are managed and the nature of accountability of the managers to the owners'* (Dictionary of Accounting, Oxford University Press, 1999).

Definitions of corporate governance on the broader side emphasize that stakeholders and shareholders should share a larger amount of responsibility. According to Solomon and Solomon (2004), corporate governance in the broadest way is defined as "*the systems of checks and balances, both internal and external to companies, which ensures that companies discharge their accountability to all their stakeholders and act in a socially responsible way in all areas of their business".* However, corporate governance is defined also as the mechanism in which the board controls all the actions of CEOs, managers, and other stakeholders to improve the value of the shareholders (Monks and Minow, 2004).

Having clarified the debate about the lack of a universally accepted definition of corporate governance, there is no surprise that another debate is existent about what constitutes good corporate governance for firms (Plessis et al., 2005). Many studies have argued that good corporate governance needs to be developed internally by establishing voluntary practices depending on the context of the firms, and it is proven that the "one size fits all" mechanism should not be implemented as it does not secure best practices for companies (Arcot and Bruno, 2006). Several recent factors have increased the need for good corporate governance

due to developments, globalisation, fraud and abusive scandals which have brought an awareness of insufficient governance and the need for reform.

3.3 The development of Corporate Governance Codes in UK

Modern firms were historically a product of a small quasi-governmental arrangement often chartered by the Crown to undertake a specific trading purpose. These modern firms are evolved from a financing arrangement where a group of people share the same interest to develop a large trade expedition which needs a massive capital investment, as it could not be sponsored by one individual (Adelopo, 2013). The corporation as it is known today is a product of a long process traced back to the Middle Ages, the period of the Renaissance and to the great Industrial Revolution (between late 18th Century and early 19th Century). The long process of evolution, especially in the 19th Century, has a significant impact on the perception of the way the modern corporation operates. Therefore, the work done by Berle and Means (1932) has witnessed a huge acceptance and is highly recognized because it provides a significant insight into the interactions within corporations. They proposed that there is a separation between the owners of the organizations and the management team, and this separation requires a formal arrangement placed in contracts between the two parties. They suggested that the separation is due to the expansion of size of the corporation and the constant distancing of owners from the daily running of the organization. Also, it has been recognized that Jensen and Meckling (1976)'s work on the relationship between agent and principal is equally vital, even though such relationships were first discovered and discussed in the 18th century by Adam Smith in his book *Wealth of Nations*. However, the issues of governance in corporations such as the prospect of contradictory interests between the principals and agents were observed and discussed by Coase (1937), Jensen and Meckling (1976) and Fama (1980), which initiates the discussion on Corporate Governance.

However, after the publication of Berle and Means' work in 1932, under the title of "The Modern Corporation and Private Property", the issue of sound governance regarding reducing agency problems gained a massive importance. Their work detailed the separation of ownership from management which resulted in lack of power in the hands of the shareholders to keep controlling the management of large public corporations who are supposed to work in their interests. Alongside the division of control and ownership, another essential concern of equal importance results from the dispersion and diffusion of the ownership, which reduces

their abilities to run the corporation collectively, with the ultimate option of being able to sell their shares which can be taken by shareholders who are not satisfied with the performance of the firm. This is considered a factor in affecting controlling management by shareholders.

The term corporate governance was not generally used in the analysis until 1984. In the UK, there was a book published by R. I. Tricker in 1984 under the title of Corporate *Governance, practices, procedures and powers in British Companies and their Boards of Directors*. In addition, Cheffins (2001) made a comparison of the development of the Berle and Means Corporation in the US and in the UK. Although the UK was the only single country which followed a similar construct of the US model of the firm based on dispersed ownership and corporate capitalism (Coffee, 2012), this development as suggested by Rose (1994) is recent and was achieved in the late 1980s. The corporations in the UK prior to this time were characterised by a high proportion of family owned organizations (Chandler, 1990). The factors which transformed the corporate outlook of the firms in UK are financial service regulations, impact of company law and political ideology (Cheffins, 2001).

Based on Cheffins (2001), the modern firm as defined by Berle and Means (1932) has been noticeable in UK since the mid-1980s. Therefore, it is reasonable to start reviewing corporate governance development around this time. In the last two decades, several reports have made a major development in the corporate environment that shaped the corporate governance structure in UK. Those reports resulted in revisions to corporate governance practice which tackled the main issues involved in governance arising since 1992. These issues in the corporate governance area and accountability have emerged and attracted interest in UK listed companies. The subject of Corporate Governance has become one of the most significant topics of concentrated research endeavour in the fields of accounting, finance and econometrics. The original incentive of such interest was the unanticipated collapse or failure of a number of high profile companies at the end of 1980s and early 1990s such as Maxwell, BCCI, Coloroll and Polly Peck, which were an evident indication about bad corporate culture (Cadbury Report, 1992), as they resulted in massive losses for both stakeholders and shareholders. However, despite the growing issues such as directors' excess, dissatisfaction of institutional investors and the misbehaviour of directors, at that time, the academics reacted only to address those issues after the Cadbury Report in 1992 (Collier and Gregory, 1996). The absence of both governance and accountability had worsened the situation within and surrounding the unsuccessful companies. The collapse of companies in the 2000s (Enron, 2001, and WorldCom, 2002) in the USA is regularly mentioned as the immediate reason for

addressing the problem of corporate governance (Chhaochharia and Grinstein, 2007). In addition, the Asian Financial Crisis (AFC) of 1997-1998, has focussed the attention of academics, regulators, policy makers to assess the various governance regimes applied and followed in the affected countries (Backman and Butler, 2003).

It is well understood that better governed firms have higher value and their accountability is improved (Beiner and Schmid, 2005). It is believed that shareholders and firms use internal corporate governance mechanisms as tools to reduce corporate risk and to enhance the value of the firm (Beckley, Parker, Perrett, 2008). The importance of good governance has received considerable attention from large companies in UK, as is reflected in the adoption of various governance reports, and this has brought corporate governance issues under increasing scrutiny. The main concerns were about the composition and behaviour of the board of directors as guardians of the interests of shareholders, the role of the CEO and the chairman of the company, the role of executive and non-executive directors, independency of non-executive directors and accountability of statutory auditors, the transparency of company reports and accounts and the power and ability of external shareholders to monitor the management team (Collier and Gregory, 1996).

The first institutional reaction to these governance issues in the UK was the establishment of the committee on the Financial Aspects of Corporate Governance in 1991. The chairman of this committee was Sir Adrian Cadbury and it was set up jointly with other various institutions such as Institute of Chartered Accountants in England and Wales (ICAEW), the Financial Reporting Council (FRC), and the London International Stock Exchange (LISE). This committee became known as the Cadbury Committee because it was chaired by Sir Adrian Cadbury and, accordingly, in December 1992 the first report was published under that name (Cadbury Report, 1992).

The establishment of the Committee was to consider different issues relating to financial reporting and accountability and to consequently make recommendations on good practice. The main issues were premised on the responsibilities of the executive and non-executive directors regarding their reviews and reports on corporate performance to the shareholders and other interested parties, the audit committee and its role and composition, the main responsibilities of the auditors and the value and the extent of audit, and finally, the links between all the stakeholders, boards and auditors (Cadbury Report, 1992). Although the financial scandals spurred the establishment of the Cadbury Committee, its recommendations

were initially directed at the board. While the report made recommendations for company auditors and investors, the corporate board was its central focus.

The Cadbury Report's main recommendation was to develop a code of best practice which all listed companies in the UK would abide by, underpinning a 'comply and explain' rule rather than by legislation. In the report, the main focus was on leadership, composition of the board and its role, and recommended that companies should:

- Separate the individuals occupying the roles of Chairman and CEO at the same time
- Appoint at least three non-executive directors
- Establish a remuneration committee and auditor committee, both committees to solely consist of non-executive directors
- The company annual reports and accounts should clearly state the responsibilities of the directors for the preparation of published financial disclosures

Moreover, in the Cadbury report (1992), institutional shareholders were encouraged to take a more involved and active role in monitoring the companies, especially with regard to applying their votes at the annual general meeting. Also, the Cadbury Code (1992) encouraged the accounting profession to seek options in which the statutory audit might become more effective and objective (Collier and Gregory, 1996). The heart of the objectives of the committee's recommendations was to design the code of best practice to achieve the essential high standards of corporate governance behaviour. Subsequently, the London International Stock Exchange (LISE) accepted the Cadbury report recommendations as the best practice. Following the Cadbury report (1992), all the listed companies registered in the UK have been obliged, as a condition for continuing listing, to state in their annual report to shareholders their compliance with the code, and to state the reasons for whether there were any areas of non-compliance (Conyon and Mallin, 1997).

Since the Cadbury Report, numerous other reports have been issued dealing with diverse and developing aspects of corporate governance. Continuing concern about the remuneration of the top executives in UK companies led to establishing a new committee in 1995 chaired by Sir Richard Greenbury (Greenbury Committee 1995). The purpose was to identify a best practice to address the issue regarding the determination of the remuneration of directors and to set up a code of conduct for such practice. Although, the Cadbury report in 1992 included

remuneration in its recommendations - in particular, the establishment of the remuneration committees and the disclosure of remuneration which were addressed in the code of best practice - a deep and comprehensive discussion attracted both the public and the politicians concerning the high pay earned by executives in the large listed companies. The Greenbury Committee recommended the following:

- Setting up a pay structure to align the interest between shareholders and directors
- Establishing a remuneration committee comprised exclusively from non-executive directors to report on remuneration affairs
- Reporting all the details of the components of directors' remunerations
- Shareholders' consent should be required for long-term incentive plans
- Companies should deal with the remuneration in a reasonable manner and should not offer directors' service contracts with a notice period of more than one year
- Link between the performance of the directors and the remuneration packages

In addition, the report of the committee set its observations on the issues in directors' remuneration; they argue that there is a causal link between performance and remuneration. The improvement in the UK's industrial performance has supported the directors' increasing pay and compensation because of their ability in positively affecting the performance of the companies (Gregory, 2001). Therefore, the remuneration packages offered has of necessity been attractive to motivate and retain the qualified managers and directors.

Cadbury recommendations initially suggested establishing a committee on corporate governance mechanisms to assess the importance and efficiency of the recommendations operating in practice. In November 1995, both the Cadbury Committee and the Greenbury Committee requested the establishment of another committee to review the implementation of their committees' recommendations. A committee was established under the chairmanship of Sir Ron Hampel, which consequently issued a report (Hampel, 1998). The committee was sponsored by The Confederation of British Industry, The Consultative Committee of Accountancy Bodies, The London Stock Exchange, The National Association of Pension Funds, and the Association of British Insurers (Cadbury, 1992). The Hampel Committee started its deliberations in 1995, which coincided with Greenbury recommendations (1995) to promote high standards of corporate governance. Hampel (1998) also sought to review the initial impact of the Greenbury (1995) recommendations on remuneration decisions and disclosure.

The main remit of this committee was to conduct a review of the application of the recommendations addressed by the previous two committees and to put forward its own recommendations. The Hampel Report was issued in January 1998 and an adaptation of a new flexible approach was needed to make the implementation of the recommendations which commonly approved with the earlier two reports. In January 1998, the report was submitted by the committee to its sponsors against the remit which is enclosed within that report on page 65. The main five points of the committee's terms of reference were:

- Apply an assessment to check if the main purpose of the Cadbury code and its application has been attained, suggesting any changes to and removals from if needed
- Review constantly the executive and non-executive director roles, ensuring the importance for the board of the directors' solidity and recognising the directors' common legal responsibility
- Ready to follow any related matters rising from the report of the Study Group on Directors' Remuneration chaired by Sir Richard Greenbury
- Point out when needed shareholders' roles with relation to issues in corporate governance
- Point out when needed auditors' roles with relations to issues in corporate governance
- All the other related matters should be dealt with

The Hampel committee initially provided little of added recommendations but it emphasized the balance between accountability and prosperity because the accountability factor was covered sufficiently in Cadbury and Greenbury. Accordingly, Hampel (1998) recommended that superior governance be built on principles rather than prescription and it could be achieved by permitting the companies to offer information in a different style and avoid a "box-ticking" exercise. After the Hampel report (1998), the committee issued a further document which consolidated and amended the recommendations of Cadbury (1992), Greenbury (1995) and the Hampel Proposals (1998) and the result was a single combined code containing a set of principles and provisions published in 1998, based on good corporate governance practices and principles in the UK (Combined Code, 1998).

A further development took place in 1999, when a new report was published by the Institute of Chartered Accountants in England and Wales. This report of a committee headed by Nigel Turnbull concentrated on issues of internal control in the governance of UK companies (Turnbull, 1999). It considered the recommendations imposed by Hampel (1998) and did not impose new internal control requirements but required the directors to check regularly the quality of internal control and take into account suitable measures to control the risks facing the company. It also asserts that directors should review the current procedures to evaluate their adequacy and relevance for the new risks confronting the corporation. It provides guidelines for the directors in order to report on the effectiveness of the internal control in the companies for the shareholders. In addition, Turnbull (1999), consistent with other views, moves away from a prescriptive advice approach; it allows companies which do not have an internal audit function from time to time to review and choose to establish specific internal audit function. After that, the Myners (2001) report was issued and the establishment of the committee was to promote greater shareholder activism.

Following the Enron and WorldCom Scandals the Smith Committee had been established. The government responded to the corporate failure in the US and requested the Financial Reporting Council to assess the preparedness in the country in avoiding such failure. Higgs and Smith reports of 2003 respectively examined the role and effectiveness of non-executive directors and the role of audit committees, and those reports led to an updating of the Combined Code. But shareholder performance and soft regulation remained basic key points of the reforms (Cosh, Guest and Hughes, 2006); thus the report supports all the main recommendations in the Combined Code such as separation of the positions between the chairman of the board and the chief executive. It emphasizes the meeting of the non-executive directors annually as a group with the attendance of the executive's directors, and that the annual reports should note that such a meeting had taken place.

The Financial Reporting Council in July 2003 incorporated the recommendations of the various committees and published the revised 'Code' on corporate governance in the UK. The amended Code requires listed companies to reveal more detailed information about compliance and the Code principles. This practice helps the board to identify their positions in regard to compliance and to use compliance as a communicating tool between them and stakeholders and investors. As stated by Cadbury (1992), the Code is established on best practices and on well-managed companies in this field. Thus it is not deemed a theoretical normative model showing the companies what to do, but it composes a practical and

pragmatic approach to set governance mechanisms for a listed company. In theory, companies with higher compliance with the Code should constitute a good governance system with higher efficiency and better corporate performance.

The Combined Code was updated in 2003, emphasizing that the board should not be a focus of power in one or two individuals. The code states that other than smaller companies, half of the board at least, without the chairman, should comprise independent non-executive directors determined by the board. Corporate governance reports have been developed in the UK in a reactive manner more than proactive. However, the framework of the corporate governance in UK is well developed and it covers the whole range of main mechanisms such as structure and independence of board of directors, ownership structure, independence and integrity of the audit process and institutional investors (Fraser and Henry, 2003). The main provisions of the amended version of the Combined Code in 2006 (FRC, 2006) are:

- A single board is collectively responsible for all the operating actions whether leading the firm, setting the values or taking decisions
- Separation of the chairman and chief executive, and clear division of the responsibilities of running the board and the company
- Balance between independent non-executive directors and executive directors
- Regular assessment of the efficiency of the board and its committees
- The shareholders should approve the appointment of the directors
- Executive remuneration should be decided/approved by the independent directors
- There should be linkage between the performance of the directors and remuneration packages
- The responsibility of the board in assessing the position of firm and internal control
- Establish an audit committee from independent directors with experience to take responsibilities
- Regular contact between the board and the shareholders

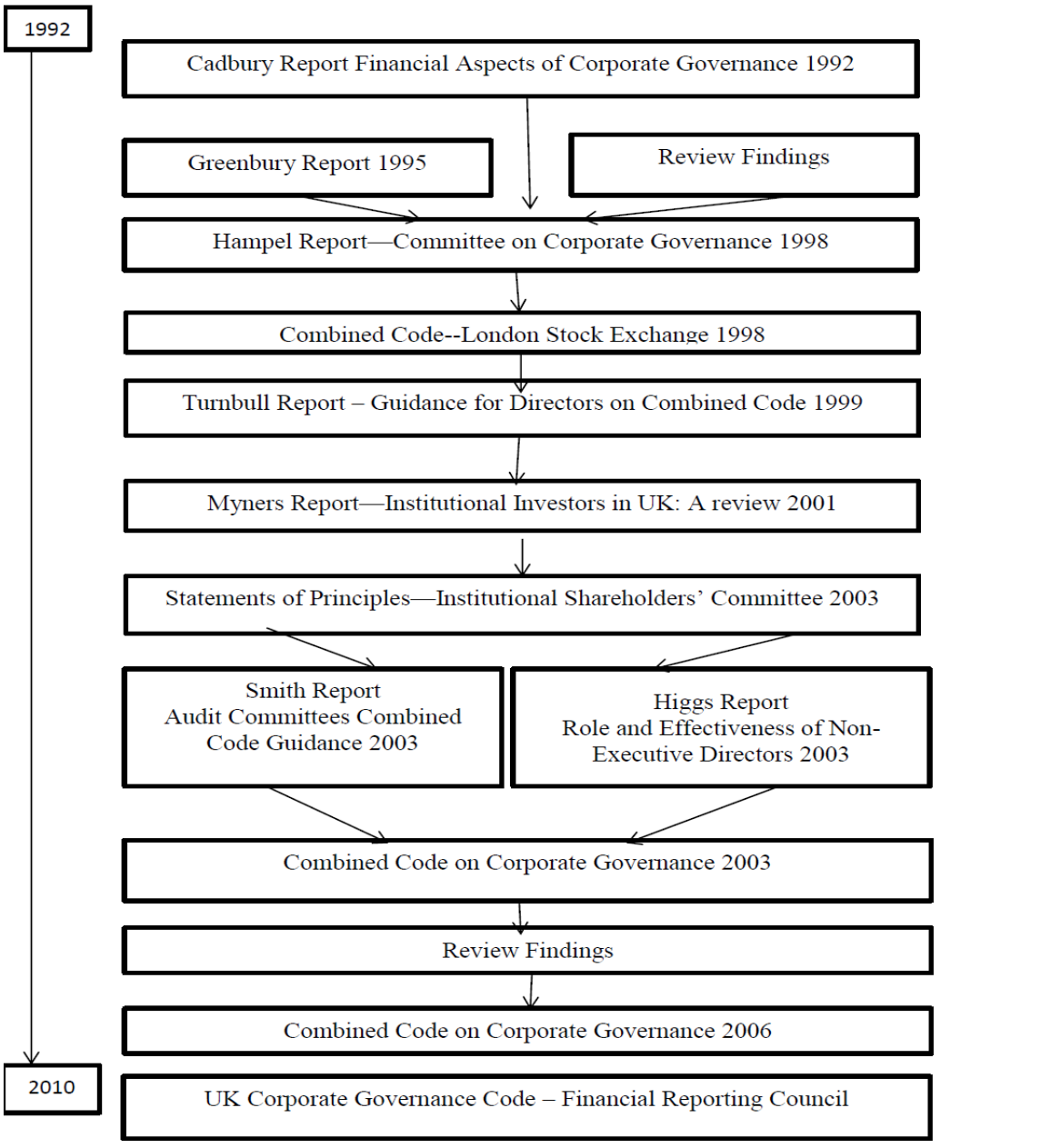
- Institutional shareholders are required to communicate with the companies and have responsibilities regarding their votes

The Code is constantly evolving and a recent edition of the Combined Code was issued in June 2008. There are two major changes between the 2006 and 2008 editions as a main difference. Firstly, the restriction for one person chairing more than one FTSE 100 company is removed. Secondly, for the large companies outside the FTSE 350, the chairman of the company is allowed to sit on the Audit Committee as long as he/she was considered initially independent on appointment (Combined Code, 2008). The Financial Reporting Council conducted its review of the effectiveness of the Combined Code and it requested observations from listed companies, directors and investors to include in the updated version of the code. Based on the views received, the FRC published a progress report listing the central issues to appear from the opening phase of its review. In December 2009, there was a final report on the effectiveness of the Combined Code with some changes taking into account some recommendations and it proposed to change the name of the Combined Code to the UK Corporate Governance Code. The new Code was issued on 28 May 2010 and replaced the Combined Code (2008) with some limited but major changes. Four new main principles have been introduced addressing the responsibility of the chairman in leading the board, the need for sufficient time devoted by the directors, the requirements for NEDs to constructively challenge and the requirement for the board to have balance between experience and skills. However, one change has focused mainly on the recommendation for the re-election for directors. Measures also include promotion of diversity and balance in connection to the board's composition, particularly in relation to gender. It also addresses the remuneration issue and the link between performance and pay for executive directors which have to be agreed in criteria not concentrated purely on finance and must consider the company's risk, long term interest, and systems.

Overall, sound corporate governance aims to establish principles and practices for all listed companies to comply with. Consequently, firm's governance quality is linked to the degree of variation in extent and form of compliance with the Code which theoretically is supposed to be reflected on its performance as well. Firms fully complying with the Code indicate good governance and subsequently, because less agency costs exist, it is likely in theory to have better performance and increased firm's value. Those successive codes have responded to the changes and the issues which occurred in the last two decades. But most importantly, the

question is whether the companies have reacted to these recommendations and how much impact these recommendations influence the overall performance.

Table 3.1Development of corporate governance codes in the United Kingdom



Source: Taylor (2004: 418) (Arrows do not show straight away that there is a hierarchy but only the yearly development leading to the Combined Code, 2006).

3.4 Theories on the role/effects of Corporate Governance

This section discusses the relevant extant theories that attempt to link internal corporate governance structures and firm financial performance. Theories underlying corporate

governance have been drawn from a variety of disciplines, such as accounting, economics, finance, and law, amongst others (e.g., Rwegasira 2000; Mallin, 2007; Solomon, 2007; Durisin and Puzone, 2009). As a result, past studies have adopted several theoretical perspectives. Common among them include agency, resource dependence, managerial signalling, legitimacy, organisational, political costs, stakeholder, stewardship and transaction cost economies theories. Clarke (2004) offers a detailed overview of most of these corporate governance theories.

In this study, and as in many others that will be reviewed in this chapter, corporate governance is approached from a finance perspective, using a quantitative research methodology. In fact, much of the prior research on corporate governance has been carried out based on agency theory (Filatotchev and Boyd, 2009). Agency theory is, therefore, adopted as the principal underlying theory. However, given the complex nature of corporate governance, and in line with both prior studies (e.g., Nicholson and Kiel, 2003; Haniffa and Hudaib, 2006), as well as recent calls for the adoption of multiple-theoretical approach to corporate governance research (van Ees *et al*., 2009; Filatotchev and Boyd, 2009, p.259), where applicable, agency theory is complemented with information asymmetry and managerial signalling, organisational, political costs, stewardship, and resource dependence theories. This gives the study a multiple-theoretical orientation.

3.4.1 Internal corporate governance and firm performance: Supporting Theories

3.4.1.1 Information Asymmetry and Managerial Signalling Theory

Prior studies have relied on information asymmetry and managerial signalling as a supporting theory to explain the link between shareholders (principals) and managers (agents) in modern corporation (e.g., Shabbir and Padget, 2005; Black et al., 2006a). It suggests that managers as insiders typically have much more information, including private information, about their companies than shareholders or prospective shareholders (e.g., Healy and Palepu, 2001; Kapopoulos and Lazaretou, 2007).

In this regard, and in making portfolio decisions, prospective shareholders in particular face two problems. Firstly, potential investors face the problem of selecting firms with the most capable management (adverse selection) (Rhee and Lee, 2008). Secondly, and just as it is with agency theory, they are confronted with the problem of ensuring that managers do not use their superior information to extract excessive perquisites or invest in unprofitable

projects (moral hazard) (Kapopoulos and Lazaretou, 2007). Jensen and Meckling (1976) and Mishkin (1997) suggest that faced with asymmetric information and market uncertainty; rational prospective shareholders have two possible options. Firstly, they may either choose to take into consideration the potential costs of adverse selection and moral hazard in pricing a security of a firm. Secondly, they may also choose not to make the investment altogether. In this case, whichever option prospective shareholders choose is likely to have a negative impact on the cost of outside equity capital for firms. To minimise the selection dilemma facing investors, better-governed firms (i.e., firms with the least adverse selection and moral hazard problems) will have to find ways by which they can credibly signal their quality to prospective shareholders. A major way by which firms can creditably signal their quality to the market or prospective shareholders is to adopt good corporate governance rules.

In theory, by electing to comply with the recommendations of a code of good corporate practices, a firm will essentially be signalling to investors that it is better-governed. This suggests insiders will behave well with their investment, and by implication work in the interest of shareholders. As a corollary, investors will bid-up share prices because with better corporate governance, they are likely to receive a greater portion of their firms' profits as opposed to being expropriated by managers (e.g., La Porta et al., 2002; Beiner et al., 2006). As equity values appreciate, the cost of outside equity capital can be expected to fall (e.g., Shabbir and Padget, 2005; Black et al., 2006a; Chen et al., 2009). For example, by appointing independent non-executive directors to the board, a firm signals to potential investors of its intentions of treating them fairly, and for that matter the safety of their investment. In this regard, by signalling (disclosing) its better governance qualities to investors, a firm reduces information asymmetry. This is likely to lead to an increase in share price and firm value for existing shareholders due to the potential increase in the demand for its shares (e.g., Deutsche Bank, 2002, p.5; Black et al., 2006a and b). Equivalently, an increase in a firm's share price should, *ceteris paribus*, result in a reduction in the cost of outside equity capital (e.g., Botosan, 1997; CLSA, 2000).

3.4.1.2 Stewardship theory

Contrary to agency, information asymmetry and signalling theories that place emphasis on managerial opportunism and monitoring, stewardship theory posits that executive managers are intrinsically trustworthy individuals (Nicholson and Kiel, 2003). As such, managers

should be fully empowered to run firms because they are good stewards of the resources entrusted to them (Letza et al., 2004). Further, stewardship theory makes several assumptions about the behaviour of senior managers. Firstly, it assumes that since top managers usually spend their entire working lives in the company they govern; they are more likely to understand the businesses better than outside directors and so can make superior decisions (Donaldson and Davis, 1991). Secondly, executive managers possess superior formal and informal information and knowledge about the firm they manage, which can aid better decision-making (Donaldson and Davis, 1994). Finally, competitive internal and external market discipline and the fear of damaging their future managerial capital ensure that agency costs are minimised (e.g., Fama, 1980; Fama and Jensen, 1983a). As a result, proponents of stewardship theory contend that better financial performance are likely to be associated with internal corporate governance practices that grant managers greater powers, such as combining the positions of company chairman and CEO (Donaldson and Davis, 1991,1994).

3.4.1.3 Resource Dependence Theory

Resource dependence theory is the final supporting theory of corporate governance that this study relies on. It suggests that the institution of internal corporate governance structures, such as board of directors is not only necessary for ensuring that managers are effectively monitored, but also they serve as an essential link between the firm and the critical resources that it needs to maximise financial performance (Pfeffer, 1973). Firstly, the board and non-executive directors in particular can offer essential resources, such as expert advice, experience, independence, and knowledge (Haniffa and Cooke, 2002). Secondly, they can bring to the firm reputation and critical business contacts (Haniffa and Hudaib, 2006). Thirdly, the board can facilitate access to business/political elite, information and capital (Nicholson and Kiel, 2003). Finally, the board provides a critical link to a firm's external environment and significant stakeholders, such as creditors, suppliers, customers, and competitors. As a result, it has been argued that greater level of links to the external environment is associated with better access to resources (Nicholson and Kiel, 2003). This can impact positively on firm financial performance.

3.4.1.4 Agency theory

Agency theory seems a dominant subject and has been broadly used in a variety of subjects within corporate finance and significantly in corporate governance studies and analyses

(Dedman, 2004). The effects and consequences of agent-principal theory have been an attractive subject for a large number of researchers around the world (Carrillo, 2007).

It is very often seen as the most used theoretical approach to the analysis of corporate governance, based on the idea of the division between ownership and control which is involved in the current corporate. It initially started with the work of Berle and Means (1932) which highlighted the separation between the management of the firm and its ownership. It is mainly focused on the alignment of the interests of both parties - the agents and the principals (Jensen and Meckling, 1976 and Fama, 1980). It indicates the relationship between these two parties, the principals who are the shareholders or the owners of the firm and the managers as their agents to manage and control the firm, but may not take full action in the interest of the shareholders, but instead work to enhance their own interest. This situation was documented by Adam Smith in the eighteenth century in his commentary on joint stock companies (Cited by Cadbury, 2002, p.4): *"being managers rather of other people's money than of their own, directors of such companies cannot well be expected to watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own".*

Also, the significant work of Jensen and Meckling (1976) and Fama and Jensen (1983) have developed and strengthened this theory. They suggested that the agency problem arises between the principals and their agents, as the agents are employed for a reward to run the business and to make the decisions on behalf of the owners. This relationship is shown to be bedevilled with two major interdependent problems: (1) the possibility of the agent having more access to the information over the principal (information asymmetry), and (2) potential prospects of opposing interests between the agent and the principal (Hill and Jones, 1992, p.132).

There are three main assumptions from which the agency problem arises. Firstly, Eisenhardt (1989, p.58) stated that with regard to risk-bearing it is presumed that the agent and the principal do not probably have the same outlook. Secondly, essentially the agent and the principal might not share the same interests and goals. Thirdly, both parties to the relationship are assumed to be utility maximisers (opportunistic) to the extent that even if their goals or risk preferences were not to inherently differ, *ceteris paribus*, there would be a compelling reason to believe that a rational agent would not always act in the best interests of the principal (Jensen and Meckling, 1976, p.308).

Thus, as agent, the management acts on behalf of the principal for fiduciary duties to run the organization (Jensen and Meckling, 1976; Pratt and Zeckhauser, 1985a). There are four main manners which have been identified where the self-interested managers could cause costs which might reduce the shareholders' wealth. Firstly, utility managers might exploit their position to take advantage of the resources of the corporate and use power to award themselves packages of excessive compensation. Secondly, they might abuse the corporate wealth by choosing to maximize their own wealth in consuming more bonuses and perquisites. Thirdly, they might choose to use the available cash and make investment in non-profitable projects and less efficient opportunities over paying out dividends when it is convenient. Fourthly, they might also not devote enough time, put greater effort, and/or assign individual skills. Finally, managers may either choose to devote less time, effort, personal skill and/or inventiveness to maximize the value of some activities, for example not looking for some profitable new investment projects (Jensen and Meckling, 1976, p.313).

But in general, the theory assumes that the managers are self-interested, opportunistic and individualistic in nature, and are interested to maximise their own wealth and status to the detriment of the shareholders. Consequently, the theory is established on the assumption that there is constantly a deviation amongst the objectives between the shareholders and the management. The managers are unlikely to act in shareholders' best interests and it can result in conflict between the two parties because managers are directly controlling the company and they have direct access to accurate information, which is considered an advantage over the shareholders, consequently such conflict leads to the agents' failure for maximizing shareholders' wealth and affects the performance of the firm (Morck et al. 1988). Therefore it is in the shareholders' interest to apply monitoring and control mechanisms over the management team, to ensure that their interest is aligned with the managers' interest (Carrillo, 2007). Consequently, in order to protect the interest of shareholders, a suitable and an appropriate corporate governance structure needed to be established (Haniffa and Hudaib, 2006).

Also, Eisenhardt (1989) states that agency problems could arise due to two issues: moral hazard in the contracts and adverse selection for the managers (Jensen and Meckling, 1976). Moral hazard is represented in the case where there is no perfect deal between the agent and the principal and does not cover all the actions performed by the managers, thus some

decisions taken by the management are not optimal and might be opportunistic. As the moral hazard occurs after the contract, however, adverse selection takes place before and after the contract between the agent and the principal (Sung, 2001). Gomez-Mejia and Wiseman (2007) stress that adverse selection happens when the shareholders possibly hire agents who lack the experience and skills to deliver expected returns and that might be due to the existence of information asymmetry between the principals and the agents (Scapens, 1991). In addition, the shareholders and the managers certainly have different risk attitudes (Jensen and Meckling, 1976). Thus, the principals are required to take actions to establish forms of controls due to the continuous existence of information asymmetry. Annelies and Gaeremynck (2012) examine the impact of principal-principal agency problems on the quality and effectiveness of corporate governance structures in listed companies from 14 European countries between 1999 and 2003. Using a simultaneous equations model, they find that the conflict index affects the quality and effectiveness of corporate governance. When agency conflicts are severe, the costs of installing good governance are high for the majority shareholders and the quality is low. Once installed, however, good governance structures complemented with a high-quality disclosure environment leads to higher firm value, especially in companies with a severe agency conflict.

Jensen and Meckling (1976) point out that there is no doubt that finding and setting up some mechanisms for control will lead to conceding three main costs. Firstly, the principal is able to cut down and minimize the abnormal actions of the agents by expending some resources to develop a monitoring system to help him control the agent. Such a technique might impose extra effort on the principal to be able to control his agent's behaviour by including some conditions in the contract with regards to some restrictions in the budget, operating rules and compensations policies and some others. Secondly, Hill and Jones (1992, p.132) argue that the agent is probably required by the principal to spend resources (bonding costs) to secure that there is no harm caused to the principal by some particular action taken by the agent. It is presumed that the agent might ex-ante incur bonding costs to guarantee the right to be managing the principal's resources. Thirdly, it is assumed that there will still be a divergence between the decisions taken by the agent and these decisions that aim to achieve maximization of shareholders' wealth, regardless of the introduction of bonding and monitoring mechanisms (governance structure), known as residual loss. In summary, agency cost is known as the total of the three costs mentioned above, the bonding costs of the agent,

the monitoring costs of the principal and the residual loss remaining *(*Jensen and Meckling, 1976, p.308).

Brennan (1995) declares that agency cost is due also to the impracticality of creating a complete contract for every single management's action or decision between the shareholders and the managers in which the management may directly benefit and protect the shareholder's wealth. Agency problems are likely to exist in different instances within the firm, but are most probably to be found in decisions regarding diversification investing, and mergers and acquisitions (Lane et al, 1998). This could be linked to the tendencies of management to avert appropriate offers in pursuit of their own interest to the damage of the shareholders (Lane et al. 1998; Buchholtz and Ribbens, 1994). The agency problem is most represented in the relationship between management and shareholders, and it attracts the most attention, however, it could exist in other relationships, for example between management and debt holders (Shleifer and Vishny, 1986; Stulz, 1990).

Fama (1980) discusses the increasing separation of ownership from management; he suggests that as the ownership side is increasingly dispersed, management tends to act more freely and become less accountable and their actions less monitored by the shareholders. Morck and Steier (2005) argue that because management is primarily involved in the decision making process in the firm, the owners are either dispersed in numbers or they lack the experience and the right sort of skills to manage the business successfully or to take the right investing decisions for long term. However, managers are closely running the business on a daily basis and for sufficient time to be able to obtain more accurate information about the firm than any individual owner. This leads to the classic problem of information asymmetry (Aboody and Lev, 2000). The agency problems are exacerbated due to the differences in the nature and scope of such information between the management and the shareholders. Thus, the owners are often at the weakest side in this conflict and that encourages the management and gives them an unrestrained opportunity to take sub-optimal decisions and consume perks for their interests, causing the harm for the main objectives in maximizing the wealth of shareholders (Murphy and Zimmerman, 1993).

To achieve the target in encouraging the agents to act in the interest of principals, several mechanisms have been adopted to reduce conflicts of interest and to protect shareholders interest (Weir, Laing and McKnight, 2002). McColgan (2001) declares how Agency theory assumes that shareholders respond to the conflicts of interest in two ways. Firstly, they increase different monitoring methods to ensure that managers are keen and determined to

maximize the firm's wealth. Secondly, they introduce incentive schemes for management that encourages them to perform to their optimum towards achieving long term success. These mechanisms include incorporating as many possible clauses in the contracts to provide security and align interest between the owners and the management (Denis, 2001). Nyman et al (2005) propose other mechanisms to control an agent by a principal, firstly, through implementing an information system purposely aimed to control the agent and, secondly, by creating an agreement with the agent based on results oriented contracts, for example compensation related to certain achieved results. Hence, such contracts could increase the cost for the principal**.**

Finally, by incurring bonding costs, managers can be urged to sign contractual guarantees that insure shareholders against malfeasance on their part (Jensen and Meckling, 1976, p.308). These may include: (1) having the financial accounts audited by independent public auditors; (2) appointing independent non-executive directors to monitor managers; and (3) imposing minimum managerial shareholding to align interests with shareholders (Jensen and Meckling, 1976, pp.323, 325). For greater effectiveness, shareholders must achieve an optimal balance between instituting behaviour-oriented internal structures (i.e., board and auditing structures) and outcome-oriented contracts (i.e., salaries, stock options, and shareholding) (Eisenhardt, 1989, p.58). Internally, agency theory focuses on writing efficient contracts and implementing effective monitoring and bonding to secure shareholders' interests (Eisenhardt, 1989, p.58). Externally, it relies on efficient market factors (i.e., corporate control and managerial labour) to govern or discipline internal managerial misbehaviour (Fama, 1980, p.294). Firstly, there exist efficient internal and external managerial labour markets, which exert pressures on firms to rank and remunerate managers according to their performance (Fama, 1980, p.294). Fama (1980, p.293) contends that internally there is usually competition among top managers to become 'boss of bosses'. There is also competition between top managers and lower managers who think they can gain by replacing shirking or less competent managers above them. This creates intrinsic vertical and horizontal monitoring of managers by managers themselves. Externally, each manager's current and future outside opportunity wage is determined by the current and future successes or failures of the managerial team (Fama, 1980, p.292). This means that each manager has an interest in the performance of the manager above and below him/her. As a consequence, each manager undertakes some amount of monitoring in both directions. This serves as a restraint on managers who may have incentive to expropriate shareholders' wealth (Fama, 1980,

p.293). Secondly, there exists an efficient market for trading capital and corporate control. This means poorly performing firms may be easily acquired by their better-governed counterparts. Crucially, it offers owners of capital (shareholders) the opportunity to hedge against the failings of any particular firm by diversifying their holdings across different firms. This makes the separation of ownership and control in modern corporations an efficient form of economic organisation (Fama, 1980, p.291).

Corporate governance mechanisms aim to mitigate agency problems and ensure that managers act in the best interests of shareholders (e.g., Netter et al., 2009). There are many reports which include guidance on corporate governance and encourage the management team to be more accountable (Nenova, 2003). The Cadbury, Greenbury and Hampel reports in the UK have suggested a number of important methods for aligning the acts of the management with the interest of shareholder, such as linking rewards to company profits, a method used extensively in UK companies, which offer share options to managers and directors. Another suggestion is based on increasing the stake of management in the equity of the firm (Tourigny et al. 2003). In addition, Jensen and Meckling (1976) argued that increasing the share ownership of management will bring their interest in line with the shareholders, however, Lane et al. (1998) and Shleifer and Vishny (1986) conclude that the risks of management entrenchments should be recognized. It is identified when the share ownership of the management is so significant and could be used as a power to influence the composition of the board, excessive consumption of perks and facilitate management elusion. Other methods are considered as well, such as adding incentives to management and relating management compensation to performance, reducing free cash flow available in the firm and sacking directors in the event of poor performance. The Cadbury, Greenbury and Hampel reports have tried to develop the accountability and transparency in the corporation, and plan an effective structure for corporate governance standards in the UK in order to support the intervention of non-executive directors and auditors to hold their responsibility and enforce adequate checks and balances on executive directors regarding shareholders' interest.

In addition to these reports, the corporate governance literature also suggests many ways in which agency problem conflict can be reduced; for instance, Depken et al. (2005) declare that reducing agency costs can be identified between internal and external mechanisms. Internal mechanisms can include compensation contracts and monitoring activities within the firm, while external mechanisms include monitoring activities by the capital market, including

legislators, investment professionals and investors. Despite the fact that these mechanisms are different in nature; they share a common objective, which is to align the interests of the managers with those of the shareholders (Osterland, 2001).

Monks (1998) insists that shareholders can play an essential role in encouraging managers to work for shareholders' interest and maximize their profit by practising shareholder activism. Shareholder activism is the actions taken by shareholders in order to oversee managers and to pressure them to work their best for the shareholders. One of the main tools to practice activism by shareholders is by voting on the proposals, in replacing and appointing new managers in the annual general meeting. The board of directors can be regarded as another mechanism to reduce agency costs (Fligstein and Choo, 2005); the board of directors can monitor managers' behaviour to ensure that they are working for the interest of the shareholders. Shareholders want the directors to take decisions to maximize the value of the firm's shares; however managers have their own personal aims, such as high pay and job security. These aims will essentially be guided by three things, their pay, their perks and job security (Jensen and Warner 1988). This means that directors will act in both sides, safeguarding the interest of shareholders, maximizing their wealth and at the same time will employ their efforts to pursue their individual objectives. However, Jensen and Meckling (1976) argued that, if managers have some shares in the corporation this would align their interest with the shareholders' in order to increase the value of the firm and consequently reduce agency costs. But, the dispersion of ownership still allows the managers to control the firm due to access to more accurate information.

According to agency theory, the board of directors, which is dominated by outside directors, is capable of providing effective monitoring for executive directors and will establish strategies which will consequently be able to benefit the shareholders. Therefore, the board of directors is considered the main mechanism which leads the firm to success, in particular, the composition of the board of directors. Blair (1996) states that directors are believed to be the representatives of the owners but in the modern corporation, managers must be controlled and monitored by the shareholders to make sure that they are not using their power to deviate their interest from the owners. As discussed earlier, the source of agency problems is the division between control and ownership, thus an active and independent board of directors in the modern firm could reduce the agency problems. These independent directors are acting as agents on behalf of shareholders in monitoring the acts and the decisions taken by the management whose main interest may be to enhance its own benefits rather than maximizing

shareholder value. Therefore, any changes achieved in the behaviours of the management due to activities imposed by independent directors will benefit the shareholders through the maximization of their wealth. Previous governance research have utilised agency theory as its theoretical basis, for example, Yermak (1996) studied the board size with firm performance, Bhagat and Black (2002) examined the effect of board composition on performance.

Corporate governance best practice is structured to protect the boards' activities and functions from any unfettered impact or influence and not to be dominated by any individual. The board is better to be balanced with the majority of directors being non-executives, and additionally the establishment of a number of board sub-committees. This approach is expected to increase the transparency of management activities thereby reducing the cost of expenditure on controlling and monitoring mechanisms and as a result reduces the agency costs related with these functions due to diminution in information asymmetry. Mallin (2004) states that the code of corporate governance is able to help to reduce the information asymmetry between agent and principal. It forces listed firms to disclose more information about the corporation in which the principal, based on this public information, can evaluate better whether the agents have performed their responsibilities and duties or failed to fulfil it. In the large public corporations, asymmetry of information could be better controlled, as those firms are more established, have built a good disclosure practice and they are under scrutiny from the regulators and the market (Diamond and Verrecchia, 1991 cited by Cai et al, 2008). Also, corporate governance regulations regarding accountability mechanisms such as internal control, audit and financial reporting are used to manage the risks (Spira and Page, 2003).

Many studies have been carried out to examine the association between corporate governance mechanisms and different factors, in particular its impact on the corporate financial performance (Shliefer and Vishny 1997; Boubakri et al. 2011). However, these studies are not similar regarding their findings and they have not reached the same conclusion. For instance, it has been argued that although there is an increase in public and academic interest on the mechanisms of corporate governance in active capital market, there is no clear evidence that there is a positive relationship between good corporate governance practices and corporate performance (Klein et al. 2005). Others, such as Shleifer and Vishny (1997) and Boubakri et al. (2011), found that there is a positive relationship between firms' performance and good corporate governance practice, in particular foreign or external

ownership of shares. Leblanc and Gillies (2003) supported these findings by concluding that better performance can be achieved with better corporate governance.

To sum up, agency theory suggests that due to the separation of ownership and control in modern firms, rational managers are less likely to always work in the interests of owners. Agency theory posits that a net reduction in agency costs arising from the institution of these internal corporate governance structures should help increase firm value and/or improve financial performance (Shabbir and Padget, 2005, p.3). This will result in agency costs being incurred, including monitoring, bonding and residual loss. All else equal, the institution of effective corporate governance structures will reduce agency costs. This is likely to increase firm value and/or financial performance. Information asymmetry and managerial signalling theory takes similar view to agency theory. It suggests that by incurring signalling costs, better-governed firms can increase their value by signalling their better quality to prospective investors. This is the overriding theory underlying the recommendations of a raft of corporate governance reports in many countries (e.g., Cadbury, 1992; OECD Principles, 1999). It has also been the major motivation behind an established body of empirical research that attempts to link internal corporate governance structures with firm financial performance, either through the use of empirical econometric models based on some equilibrium assumptions (e.g., Agrawal and Knoeber, 1996; Yermack, 1996; Weir et al., 2002; Haniffa and Hudaib, 2006; and Guest, 2009, amongst others) or recently through the construction of composite corporate governance indices (e.g., Gompers et al., 2003; Beiner et al., 2006; Black et al., 2006a; Henry, 2008; and Chen et al., 2009).

By contrast, stewardship theory suggests that due to their information and knowledge advantages, better financial performance is likely to be associated with greater managerial trust and powers. Finally, resource dependence theory indicates that internal corporate governance structures like the board of directors help to link the firm to critical business inputs needed for higher financial performance.

3.5 Corporate governance systems

The most important component of any corporate governance system is the board of directors (Filatotchev and Boyd, 2009).The ownership structure of the firm has an effect on the nature of agency problems between managers and owners as well as amongst shareholders. It is suggested that problems that arise when the ownership of the firm is dispersed are different to

those when that firm ownership is concentrated. In developed countries such as, the United Kingdom, the United States, Australia and Canada, dispersed ownership leads to managers and shareholders not sharing the main interests as their interests' alignment are conflicting and that have become a problem (Jensen & Meckling, 1976). However, in concentrated ownership when one shareholder has the most power and effective control of the firm, in countries such as Germany, Japan and developing countries, the central problem is that interests' divergence has arisen between large shareholders and minority shareholders.

In diffused ownership, there are a large number of shareholders, each holding a small block of the shares of the ownership of the firm. These small shareholders – called outsiders - do not have great incentives to occupy efficient role with regards to all the activities of the firm to be monitored and tend to not get involved in decisions with regards to the management of the firm. Therefore, diffused ownership structures is regarded or referred to as outsider system. These owners in the outsider systems tend to rely on the independent members on the board to play the effective role in monitoring the managerial behaviour, including guaranteeing adequate disclosure, assessing objectively the performance of the managers and securing a protective way of the shareholders' rights. Subsequently, the outsider system is deemed more accountable and is likely to foster liquid markets. However, a regulatory framework and a well-functioning legal structure are required for this system.

In concentrated ownership structures, there are a small number of individuals, either manager, families, firms, boards and lenders, who have the power of ownership and control. These individuals or groups are called insiders because they often manage, control or have a strong influence on running the operations of the firm. Hence, concentrated ownership structures are regarded or referred to as insider systems. There are many ways in which insiders exercise control over firms, such as pyramidal and cross-ownership structures (Wiwattanakantang, 2001). For example, ownership structure system takes the concentrated form in countries such as Japan and Germany in comparison with countries like the United Kingdom and the United States; also, in Germany and Japan banks play more crucial governance roles. While Prowse (1992) proclaimed that in Japan financial institutions are the most vital large shareholders, in Germany, the most crucial shareholders are the firms, followed by families (Franks and Mayer (2001). Franks, Mayer, and Rossi (2009) stated that in the United Kingdom the dispersion of ownership was obvious before strong shareholders'

rights came into existence and the most significant cause of this was acquisitions and mergers.

According to Mayer (2000), an insider system is followed in continental Europe; a small number of shareholders have the control concentrated in their hands, with a conflict of interest creating an agency problem between large and minority shareholders. Shareholders are obliged to use their rights of voting and their power to affect firm performance. La Porta et al. (1999) found that in European continental countries the three largest shareholders generally accounted for more than 50 percent of shareholders. Consistent with La Porta et al.'s view, Gorton and Schmid (2000) studied German firms, their findings showing that there is a positive relationship between the performance of the firm and ownership concentration of the bank, where shareholders are associated with firms by common shares, partially managing and controlling them. Two boards are included in such a model: management and supervisory. Meanwhile in Japan, the model is categorized by specific groups or holdings (*kabushiki*), where traditions within the families, obligation and consensus are noteworthy and a strong rapport exists amongst the government, banks and firms. Table 2.2 highlights the dominant characteristics associated with insider and outsider systems

Table 3.2 Outsider and Insider Systems characteristics

Outsider system	**Insider system**
Large firms controlled by management, but owned predominantly by outside shareholders	Firms owned by insiders who also wield control over management
US, UK, Canada, and Australia	Emerging countries, Japan and Germany
System characterised by the separation of ownership and control; agency problems	Little separation between ownership and control; agency problems are rare
Hostile takeovers frequently occur	Hostile takeovers are rare
Dispersed ownership	Concentrated ownership
Control by a large range of shareholders	Control by a small group of insiders
No transfer of wealth from minority	Wealth transfer from minority to majority
Strong investor protection	Weak investor protection
Potential for shareholder democracy	Controlling shareholders misuse power
Shareholding characterised more by exit than by vote	Large shareholders have power and voice used in their investments in other companies

Source: Solomon (2007, p. 185)

*Many European countries show features of both systems and lie in an intermediate position.

3.6 Corporate governance mechanisms

The aim of corporate governance as a mechanism is to deal with the problems arising from the control and ownership separation (Shleifer & Vishny, 1997). Two types of governance mechanisms—external and internal— for mitigating agency problems are proposed by agency theory (Jensen, 1993). Internal control mechanisms including: board of directors, firm compensation, ownership structure and financial policies (debt and dividends), are suggested by these researchers (e.g., Agrawal & Knoeber, 1996; Denis & McConnel, 2003; Denis,

2001; Hermalin & Weisbach, 1991; Jensen, 1986). Whereas external control mechanisms include the market for corporate control, legal system, and the factor and product market (Bushman and Smith, 2001). It is suggested that these mechanisms are able to provide protection and checks of the operations in a firm, enable discipline of the management and shareholders. Farinha (2003) extended the previous arguments and added some items such as the role of reputation and security analysts and dividend policy and debt policy as internal mechanisms. Schultz,Tan and Walsh (2010) examine the governance-performance relation for firms included in the ASX 200 index at any time during the period 2000 to 2007 inclusive. They selected variables that proxy for the remuneration policies, board structure, ownership and a range of performance measures such as total returns (TR), Tobin's Q (Q), accounting profit rate (PR) and return on assets (ROA). They adopt a dynamic GMM specification procedure that is robust to dynamic endogeneity, simultaneity and heterogeneity. They observe no causal relation between governance and firm performance, suggesting that apparently significant relations uncovered by pooled ordinary least squares (OLS) and fix-effects models are the result of spurious correlations.

Meanwhile Hassan (2009) researched the corporate governance in Australia and categorised the monitoring corporate governance mechanisms into three groups: I) mechanisms within the company that included board size, board composition, CEO duality, CEO tenure, CEO compensation, and managerial ownership; 2) mechanisms outside the company that included ownership concentration, debt, and corporate takeovers; and 3) government regulations and rules.

In general, the impact of a good governance mechanism on firm performance produced a mixed and inconclusive result all over the world. These evidences however are still not convincing in proving a connection between good corporate governance practices and firm performance (Heracleous, 2001). In the next section, a detailed and comprehensive review of studies in corporate governance mechanisms relevant to the current study is presented, identifying a specific set of corporate governance mechanisms and their impact on firm performance. Moreover, taking into account that the current study takes the agency theory framework and the concept of agency problem as a base—including how corporate governance mechanisms play a role in controlling this problem and the impact of these mechanisms on firm performance—the next sections review and discuss various corporate governance mechanisms connected to the current study.

3.6.1 Board of Directors

The corporate governance literature suggests that internal and external mechanisms play a central role in improving the firm value and its performance (Baghat and Black, 2002). Such mechanisms embrace board characteristics (size, independent, CEO), management team, politics, regulations and government. Board of directors is a collective of people who are nominated by the shareholders of a company, and responsible for making decisions on their behalf as it would be impossible for shareholders to meet frequently to make detailed decisions especially when the company has a large number of shareholders (Yung, 2009). Monks and Minow (1998) view the board of a firm as a pivot between the management team and the shareholders. Its mission is to link between the vast number of shareholders dispersed around the world and the main managers in head office.

Board of directors play a major role in the relationship between the corporate governance and firm value (Hanrahan et. al, 2001). In relation to the value of the firm, the main role of the boards is to perform its fiduciary duties, such as monitoring the management activities, selecting the staff for a firm. The two most important functions of the board of directors are those of advising and monitoring (Raheja, 2005; and Adams and Ferriera, 2007). Also, to protect the value of the firm the board appoints and monitors the performance of an independent auditor (Adams, Hermalin, and Weisbach, 2008).The board‘s main duty is to protect and promote the interest of the shareholders to make sure their interest is intact (Rossouw et al., 2002, p.289). Also, the board’s main role is to guarantee conformance and ensure the performance of the management in the firm and that could be through different functions such as executive action (strategy), direction (advice), service and resource support (resource dependence), supervision (monitoring) and accountability (Brennan, 2006, p.580).

Previous studies summarised the main role of boards in agency control, strategic decisions and policy support role (McNulty and Pettigrew, 1999), to provide a network to firm reputation and legitimacy (Finkelstein and Hambrick (1996) and the resource acquirer role (Johnson et al, 1996). Fama and Jensen (1983a) suggest that the board of directors approve management decisions and monitor their performances. Their fiduciary duties towards the shareholders, such as monitoring the activities of the managers, evaluating the performance of the senior executives, reflect the importance of their roles in governance, and their contribution towards providing strategic decisions in the direction of the companies increase their responsibilities. However, Jensen (1993) and Brennan (2006) suggest that the corporate

board has to be efficient and effective in implementing its functions to be capable of protecting shareholders' interests. The efficiency and effectiveness of board performance is affected by a variety of factors, for instance, size, composition and diversity (Yermack, 1996; Baranchuk and Dybvig, 2009).

The emphasis recently on leadership and board composition in the UK is consistent with the view of agency theorists of the governance role of the board. Fama 1980, and Fama and Jensen (1983a and 1983b) stress that the agency theorists place the board of directors in the heart of corporate governance. For controlling agency problems between shareholders and managers, Agrawal and Knoeber (1996) tested the use of a number of mechanisms, such as institutions, presence of outside directors, shareholding of insiders and the managerial labour market. The rise in the standards of corporate governance has appeared in appointing the board of directors and how the executives and non-executives have been controlled and monitored (Bhagat and Black, 2002).

The Cadbury Report (1992) proposed a potential structure for the board; it indicated that boards consist of a substantial number of non-executive directors and it should be reasonably balanced and act in the interests of shareholders. Dedman (2002) suggests, in a review of the major changes shaped by Cadbury Report regarding the corporate governance in UK, that there is a prevalent compliance with the report, but the existing studies fail to find any direct impact between the non-executive directors on UK boards and the value of the firm. In a study based on a sample of 460 UK listed companies, Dahya et al (2002), recognized the increase in non-executive directors on UK boards as they suggest the percentage rose from (35.3 %) to (46%) after the publication of the Cadbury Report. Also, Song and Windram (2004) find that the extent and the nature of the responsibilities and roles of non-executive directors and in particular the outsiders sitting on the Audit Committee have significantly changed from monitoring and reporting to a more advanced role in internal control functions and risk management. In addition, Dahya et al. (2002) report that over 80% of UK boards have appointed two different individuals for the role of Chairman and CEO. Those studies confirm that, post-Cadbury Report, many changes have occurred regarding the composition of boards in UK publicly listed companies.

There are various studies in the US which have tried to study corporate governance structure and other mechanisms. For example, Bhojraj and Sengupta (2003) examined the relationship

between governance structure and bond ratings and yields. Their proposition is focused on using different governance mechanisms which could decrease the default risk by monitoring the performance of the managers and mitigating the agency cost through reducing information asymmetry between the firm and the lenders. The firms which employed governance mechanisms, represented by the incidence of outside directors and institutional investors, were found to have lower bond yields and higher ratings for new bond issues resulting from these better outside controls on the board and institutional ownership.

Hermalin and Wiesbach (2003) proposed that there are a number of regularities which have been established due to some empirical work on boards: 1) board composition—as measured by insider-outsider ratio— does not show correlation with firm performance, 2) there is a negative relationship between the number of directors on the board of a firm and the financial performance of the firm, 3) board actions seem to be linked to the characteristics of the board, 4) boards seem to develop over time subject to the negotiating position of the CEO relative to that of the existing directors, 5) changes in ownership structure, CEO turnover and firm performance seem to be influential factors that have an effect on boards changes. They propose two issues: endogenity and equilibrium or out-of-equilibrium phenomena- that could make empirical work on boards of directors as well as other empirical work on governance more complex.

Numerous aspects of the Anglo-Saxon model of boards of UK and US firms have been examined by many scholars and researchers in respect to their effectiveness to improve governance and performance of a firm. These various aspects include: size of the board; CEO/chairman duality; the board and its sub-committee structure and composition; board share ownership; board meeting frequency; diversity/qualifications of directors; and cross/multiple directorships held. Generally, until very recently, one or a number of various aspects of the board have been selected and then been tested on their relationship or impact on firm performance and its value.

3.6.1.1 Board Composition

Board composition is another main board variable examined against firm performance. It is basically the proportion of executive and non-executive directors on the board; in other words, it might be termed a mixture of insider and outsider. In listed UK companies, board of

directors consist of a mixture of executive directors and non-executive directors (Solomon and Solomon, 2004). The executive directors include CEO and senior managers who are expected to contribute to the effectiveness of the board exploiting their skills, their expertise, and their specific knowledge in the industry where the company operates (Cadbury Report, 1992). After the Code was introduced, there has been a significant rise in the appointment of non-executive directors in UK firms. Little is known about the effects of the composition and structure of corporate boards on the probability of corporate failure, despite the renewed enthusiasm in issues of corporate governance and corporate failure (Fich and Slezak, 2008; Platt and Platt, 2012).

The non-executive directors are usually individuals with certain knowledge of the industry, and they normally occupy a senior management position in other listed companies (Coyle, 2004). The underlying assumption is that non-executives, in particular the independent members as stated by the Code, play a major role in improving the board decision making process in respect to key areas such as, assessment and evaluation, selection, succession planning, management compensation and, when necessary, replacement of the chief executive officer.

The independent directors protect the rights of shareholders by implementing the principles of corporate governance and could play a role as a mediator (Bhagat and Jefferris, 2002). The board meetings are typically chaired by the company chairman who might be an executive director or a non-executive director. CEO duality occurs when the same individual holds both positions in the same time, which is a contentious issue in the current corporate governance environment, because from a negative perspective CEO duality can lead to worsening performance. This is because the board of directors is unable to remove the underperforming CEO and can cause an agency cost if the CEO practises his own interest at the expense of the shareholders (White and Ingrassia, 1992). However, from a positive perspective, Alexander, Fennell and Halpern (1993) suggest that a single person holding both roles of CEO and Chairman can improve the value of the firm, as the agency cost is eliminated because cost of asymmetry is not present while both positions are held by one individual. However, the recent recommendations of the amended corporate governance reports (Hampel 1998 and Combined Code 2006) emphasize the need for two different individuals in those two positions (Conyon and Mallin, 1997). Several studies have examined the relationship between the proportion and the number of non-executive directors and the effectiveness of

the board in achieving the target as fulfilment of its various duties and improvement in firm performance. There is no evidence that the number or proportion of non-executives directors has any impact on the decision made by the board regarding dismissing managers after poor firm performance (Dedman, 2002). She also found that CEO dismissals occur only following a prolonged period of poor performance.

A survey Conducted by Russell Reynolds Associates (2002) reveals the views of "FTSE Chairmen", which are the chairmen of the largest public British companies quoted on the London Stock Exchange, including 68% of the FTSE 100. The results indicate that the main factors to provide a successful board are not based on the structure but on its capability. The success of the board is not initially achieved by board structure, ratio of executive directors and non-executive directors in the same board, independence, and diversity, as the capability of the board is the most important to its effectiveness as confirmed in the survey by the majority of the chairmen. The survey reveals another issue which is relevance of the board, as capability is not only about effectiveness and quality but also about relevance which, for example, should include in the board of international businesses foreign nationals and international experience. However, the British unitary board system has gained support from the majority of the chairmen. Additionally, a percentage of 61% from the participants believe that there is an important issue represented by the number of non-executive directors to executive directors. Some of them believe that if the representation of non-executive directors on the board is less than half, their impact would be subdued.

Conyon (1994), surveys the changes in the governance structures of UK firms between 1988 and 1993, and with respect to the changes which occur in corporate boards, found that there has been a significant rise in the proportion of non-executive directors only in the smallest boards composed between 0 and 8 members or largest board consisting of more than 13 members. The impact of board composition on firm performance has been examined in a small number of UK studies. US scholars examined the issue of the proportion of non-executive directors on board and found that larger boards could become less functional (Lipton and Lorsch, 1992) or that the CEO may control it more easily (Jensen, 1993).

These studies do not provide great support for the hypothesis that a large number of non-executive directors are associated with stronger firm performance. Vafeas and Theodorou (1998) find, in their study of 250 UK firms in 1994, that the number of non-executive

directors has no significant impact on firm performance measured by Tobin's Q. Weir and Laing (2000) study 200 UK companies in different times (1992 and 1995), and their findings suggest that there is a negative impact on profitability due to the greater number of non-executive directors in charge, but no significant effect on share price performance. In another study based on 311 firms between 1994 and 1996, Weir et al. (2002) find that the number of non-executive directors has an insignificant impact on Tobin's Q. Those results are mostly consistent with results from other studies outside the UK, for example, Yermack (1996) and Agrawal and Knoeber (1996). Griffith (1999) examines the impact of board structure on firms' value using the percentage of inside to outside directors. His study utilises data provided by Standard and Poor's 1996 ExecuComp for a sample of 969 firms. He found that there is strong evidence of a non-linear relationship between insiders' directors on the board and Q as estimated by utilising methodology suggested in Lewellen and Badrinath, 1997. The firm's value increases first and then decreases as the ratio of insiders increases. But the highest value of Q achieved was when 50% of the board includes insiders. But, in terms of firms' certain decisions, Peasnell et al. (2005) argue that there is evidence on less earning manipulation where there are a higher number of non- executive directors. However, regarding the dismissal of CEOs or executive compensation, there is no evidence that a higher percentage of non-executives leads to such decisions (Cosh and Hughes, 1997).

Comparing to the US, stronger evidence is found to support the view that the higher percentage of outside directors is linked with better particular decisions, for instance, CEO turnover, acquisitions and executive compensation (Hermalin and Weisbach, 2003). Hermalin and Weisbach (1998) found that underperforming firms are more likely to replace the insider directors by outsiders, and they suggest two possible explanations for their findings. Firstly, the insiders are perceived to be responsible for poor performance and, therefore, the companies might fire the insiders and appoint outsiders to fill the vacancy. Secondly, it is matched with agency theory when poor performance could indicate poor management and the shareholders react in placing more outsiders to represent them on the board. Based on takeover performance, Cosh et al (2006) find that the number of outside directors has a slightly negative impact on long run returns and on announcement, but find insignificantly positive impact on their operating performance measures. Thus, in general there is no consistent or significant impact across the measures. In a study carried out by Clifford and Evans (1997) in investigating the level of the independency in the board, directors were classified as outsider, grey and insider to better reflect board composition. In their initial

study, they stated that 35% of non-executive directors were engaged in some transactions with their companies which potentially threatened their independency (grey area directors). This study was conducted on 100 firms in Australia and their findings indicate that big firms appoint bigger board size where a larger number of non-executive directors were represented on that board. But the Companies Related Party Disclosure illustrated that 35.2% of the non-executive directors in their sample are either a professional advisor, a director/employee on an interrelated company, have a loan from the company, provide supply, or have a customer relationship with the company.

Dulewicz and Herbert (2004) examine the relationship between different independent governance variables and firm performance in UK. The data used was based on an initial survey in 1997, questionnaires sent out to the chairmen of the companies, 134 chairmen responded. The performance data was gathered from the FAME and QUEST database. The governance variables used as independent are: size of the board, board tenure, and percentage of independent directors, board committee and pay. Firm performance measures as dependent variables are sales turnover and cash flow return on total sales. The main finding is that there is insignificant relationship between the governance variables and performance apart from the number of insider directors which has a significant impact. There might be some critical threshold for the suitable number of executive directors but some executives who are not overwhelmed with executive responsibility should accomplish their roles on the board and therefore improve the firm performance as suggested by the authors. In addition, they also examine the relationship between board practices and the performance of the firm and they found that the board of directors who implements duties such as monitoring the performance, supervising the management and good communication could increase the values and achieve higher firm performance.

3.6.1.2 Board size

Corporate governance codes have gradually developed recommendations on the issue concerning the number of board members based on its importance in running the firm and its impact on performance. However, the UK Code has not suggested any specific number for board size, but it recommends that boards should not be too large because they will be unmanageable. In the US, the average board size decreased between 1991 and 1995 (Wu, 2000); also the number of insider directors has witnessed a reduction within the same period.

Several factors have contributed to that; mainly the rise of shareholder activism, mostly from institutional shareholders like CalPERS, who persuaded their investee firms to decrease the number of board members (Wu, 2000). It has been suggested that an ideal size is between five and sixteen members, taking into consideration the diversification of the firm and its size (Brown and Caylor, 2004). Guest (2008) points out that the specific institutional context of the UK is interesting because UK boards arguably play a much weaker monitoring role than the US firms. There is an argument posed by leading scholars that board size should be no more than 8 or 9 members (Lipton and Lorsch, 1992; and Jensen, 1993).

Board size is another variable within the corporate governance structure which has been examined in previous studies. The link between board size and firm performance was examined in previous literature; board size could have an impact on the value of the firm as the role of the boards is to discipline the management of the firm and the CEO so that it could influence the value of the firm (Dallas, 2004; Kiel and Nicholson, 2003). Adams and Ferriera (2007) point out that the two most vital functions for the boards are those of monitoring and advising. Larger boards tend to provide an increased pool of expertise, greater management oversight, and access to wider range of contracts and resources (Williams et al., 2005; Psaros, 2009).

On the empirical side, different studies show that their findings are conflicting when examining the association between firm performance and board size (e.g., Yermack, 1996; Adams and Mehran, 2005; Beiner et al., 2006; Henry, 2008 and Guest, 2009). The number of directors on the boards has changed over time and it is different across the firms due to the monitoring role, managerial characteristics of the firm and relative to specific growth. Raheja (2005) argues that board size could represent and reflect a trade-off between the particular benefits of the firm achieved by the increased monitoring and the resulting cost of this monitoring. Haniffa and Hudaib (2006) indicate that larger boards are correlated with better firm performance because larger boards are more likely to have a diversity of skills, experience, and nationality and gender.

Dalton et al. (1999) states the idea that a larger board is advantageous: the broader collective information the larger board has gathered, the better the performance. Also, Lehn et al (2004) pointed out that larger board size and the increasing number of non-executive directors has an advantage to use the more collective information for monitoring purposes. Pfeffer (1973)

suggests that a larger board could run the firm better by using a range of expertise to make recognized decisions for the firm. Board size has a positive impact on firm value for larger firms, and hence larger board size might be an optimal value maximizing result for these firms (Coles, et al. 2008). Goodstein et al. (1994) suggest that larger boards provide a better access to the external environment of the firm which mitigates its uncertainties and that enhances its chances to secure a number of resources such as finance, contracts and raw materials. Lipton and Lorsch (1992) and Jensen (1993) argued that even though larger boards primarily enhance main board functions, there is a worry that lack of communication and coordination between its members could negatively impact its effectiveness and firm performance. Also, this suggested that larger boards face a bigger difficulty from higher agency problems and thus they are not very effective compared to smaller boards, thus restricting board size could lead to higher efficiency (Yawson, 2006). Cheng (2008) reports a positive relationship between board size and financial performance. He used data from 1,252 firms covered in the Investor Responsibility Research Center's (IRRC) data set on corporate directors over the 1996–2004 periods. Cheng's (2008) results suggest that larger boards have lower variability of financial performance. In times of crisis, such as those faced by distressed firms, larger boards will be effective since they are expected to avoid making risky decisions (Chanchart, Krishnamurti and Tian, 2012). Larger boards tend to provide an increased pool of expertise, greater management oversight, and access to wider range of contracts and resources (Williams et al., 2005; Psaros, 2009).

However, Tomasic et al. (2003) argue that a smaller board of directors is likely to be more cohesive and consequently easier for the CEO to control all the members. The CEO is unable to dominate a larger board because their strength is greater and they could resist the irrational decisions taken by the CEO as reported by Zahra and Pearce (1989). Contrary to this, it is argued that it is easy for the CEO to be able to control larger boards as the latter might function ineffectively (Jensen, 1993). Larger boards decrease cohesiveness and are more diverse, but this diversity encourages debate and results in a wide range of decisions among the members of the board (Dalton et al, 1999). Compared to smaller boards, the larger boards acquire numerous opinions, more specific skills and obtain more information about the firm and about the industry's environment. It is argued by Coles, Daniel and Naveen (2004) that particular companies might benefit from a bigger board, the results in their study indicating that there is a positive relationship between board size and firm performance mainly measured by Tobin's Q. A study in the U.S banking industry, Adams and Mehran (2005)

found a significant positive relationship between firm performance and board size. Contrasted with this, larger boards could negatively affect the value of the firm due to the existence of an agency cost amongst the members of larger boards while smaller boards are more effective for the firm's financial performance (Lipton and Lorsch, 1992; Sonnenfeld 2002). Another study supports this finding by suggesting a negative relationship between a large board size and firm value. On the other hand, Yermack (1996) stresses that the small board is effective in its decisions because there are fewer agency costs among their members. Yermack (1996) studied 452 large US corporations between 1984 and 1991 and he measured firm value by Tobin's Q. He found the relationship between smaller boards and firm value significant and positive. After controlling a variety of other factors, such as, industry, firm size, growth opportunities and insider stock ownership, he found the relationship still positive and significant. Also, Eisenberg et al. (1998) studied a sample of Finnish firms and found similar results.

In addition, Cascio (2004) studied the relationship between the size of boards and a number of organizational outcomes, in particular, the relationship between board size and firm performance. Mixed results were obtained as both smaller and larger boards were found to be effective and beneficial on the performance. Eisenberg et al (1998) examined the relationship between board size and profitability in a study based on small and average sized Finnish firms and they found that there is an inverse relationship. Dahya et al. (2002) studied the relationship between performance-related-top-management turnover and board size. The sample selected was 460 UK listed firms over the period of 1988 to 1996. The findings reflected that a negative relationship exists between these two variables. Guest (2009) selected for his study 2,746 UK listed firms from 1981 to 2002 to examine the relationship between board size and firm performance. He chose three different performance measures (profitability, share returns and Tobin's Q) and he found that there was strong evidence of a negative impact of board size and these three performance measures. O'Connell and Cramer (2010) investigated the association between firm performance and both board size and board composition for companies quoted on the Irish Stock Market. The study also examined the impact of firm size on the relationship between firm performance and board characteristics. The study found evidence that board size exhibits a significant negative association with firm performance, the relationship between board size and firm performance is significantly less negative for smaller firms, and a positive and significant association between firm performance and the percentage of non-executives on the board is apparent.

A study by Conyon and Peck (1998) investigated the impact of board size on the performance of the firm between 1992 and 1995 in several countries in Europe (United Kingdom, Italy, Netherlands, France, and Denmark). Their findings indicate that the relationship is an inverse one. Moreover, they investigate the effect on firm performance when there is a change in the board structure. For example, the UK sample showed that a decrease of performance by 1.36% was associated with an increase in the size of the board from 10 to 11 members. Vafeas (1999a) reports that firms with small boards vary between five to seven members are better informed about earnings. Brown and Caylor (2004) suggest that the most ideal board size for an improved firm performance is between six and fifteen members. Most of the studies on the impact of board size on firm value have found an inverse relationship (e.g., Lipton and Lorsch, 1992; Yermack, 1996).

Loderer and Peyer (2002) find a significantly negative impact on Tobin's Q (although not on profitability) for firms in Switzerland, whilst Beiner et al. (2006) find no negative impact using a comprehensive set of listed Swiss companies. Both Mak and Kusnadi (2005) and Haniffa and Hudaib (2006) find a significantly negative impact of board size on Tobin's Q for Malaysian firms. Bozec (2005) finds that board size has a significantly negative effect on sales margin but not on profitability for 25 large Canadian firms. Conyon and Peck (1998) examine 481 listed UK firms for 1992-1995 and find a significantly negative effect of board size on both market to book value and profitability, whilst Lasfer (2004) finds a significantly negative impact on Tobin's Q for UK firms as well. Darrat, Gray and Wu's (2010) study shows that larger boards and greater proportion of inside directors, respectively, reduce complex and technically sophisticated firms' failure. Fich and Slezak's (2008) study also underlines that larger and less independent boards with a lower proportion of outside directors and larger ownership stakes of non-management shareholders are more likely to fail.

In contrast, Dalton et al (1998) suggest, generally, a larger board is positively linked with firm performance. But they only found a small, positive association between board size and firm financial performance. For small firms, the relationship between board size and firm financial performance was stronger because it was moderated by the size of the firm. This suggests that board size and other board characteristics could interact together and influence the performance of the firm. Similar results found in the following studies in the United States such as Huther (1997), Coles et al. (2008), Vefeas (1999a and 1999b), Cheng et al. (2008) and other studies other in the United States evidence such as Eisenberg et al. (1998),

Bozec (2005), Guest (2009) found similar results. But there are some studies in the United States which have found that board size has a positive effect on firm performance such as Adams and Mehran (2005) and Dalton et al. (1999).

Boone, Field, Karpoff and Raheja (2007) and Linck, Netter and Yang (2006) also demonstrate that the skills of directors along with the skills required by the company should be considered in selecting directors. They believe that there is an optimal board size for each company according to its nature and situation. However, this interpretation is by no means universally held. Determinants of board size have been examined by several studies such as Lehn et al. (2004), Boone et al. (2007) Coles et al. (2008), Guest (2008); and Linck et al., 2008). The findings of these studies mentioned above indicate that there is a relationship between the size of the board and the size of the firm. Some proxies such as financial leverage, firm age and industrial diversification were employed as a measure of complexity and showed to have a positive effect on board size (Boone et al., 2007; Coles et al., 2008; Guest, 2008; and Linck et al. 2008). There is big evidence supported by these previous studies that some particular variables of the firm influence the size of the board which show consistency with value increasing motives. Therefore, based on these findings it is suggested that board size could influence the performance of the firm differently based on the type of that firm. There is evidence that firms which are large, diversified and relying more on debt financing will originate more value of these firms due to the presence of larger board of directors (Coles et al., 2008).

Nevertheless, there is no universal consent with this interpretation. As discussed earlier, a number of studies showed that some particular firm variables, Tobin's Q, profitability and firm size have an impact on board size (e.g Lehn et al., 2004; Boone et al., 2007; Coles et al., 2008; Guest, 2008; and Linck et al., 2008). Wintoki and Yang (2007) criticised past studies for not showing sufficient control for endogeneity problems since board size is negatively influenced by firm performance. Wintoki and Yang (2007) addresses this issue and uses a generalized method of moments (GMM) estimator that allows board size to adjust to past performance, and finds no relationship between board size and firm performance.

Although several studies have argued that firms benefit from having larger boards for monitoring, strategy, and resources but yet to be agreed whether firm performance would be better improved by larger or smaller boards or what exactly is the optimal number of board

members, large boards are more diverse and less cohesive. Thus, with few exceptions, the negative relationship between firm performance and board size is well established across countries. Table 2.3 summarises the main empirical findings discussed here related to board characteristics and firm performance.

Table 3.3 Previous Empirical Studies of the Relationship between Board Characteristics and Firm Performance

Author (s)	Place and period	Board Variables	Performance measures	Methods used	Main Findings
Weir et al. (2002)	UK- 1994-1996	Outside directors and role duality	Tobin's Q	OLS	No relationship
Abdullah (2007)	UK- UK listed firms 1999-2001; 2002-2004-	Outside directors and board size	Q, ROA, and sales to total assets	2SLS	Negative relationship
Faccio and Lasfer (1999)	UK- 1650 firms 1996-1997	Role duality and outside directors	ROE, ROA, Tobin's Q, and P/E	Multivariate	No relationship
Dahya et al. (2002)	UK- 460 firms 1988-1996	Role duality and outside directors	3-year average industry-adjusted ROA	Multivariate Analysis	Positive relationship with Cadbury recommendations
Mura (2006)	UK- 1100 nonfinancial firms 1991-2001	Outside directors	Tobin's Q	GMM	Positive relationship
Dahya and McConnell(2005b)	UK- 700 listed firms in 1988	Outside directors	IAROA; stock return	Multivariate	Firms with outside CEOs have higher return.
Lin et al. (2003)	UK- 714 appointments in UK firm from 1993 to 1996	Outside directors	CAR	Regression Analysis	No relationship
Dahya and McConnell(2005a)	UK- 1124 listed firms 1989-1996 Event study	Outside directors and role duality	ROA and stock prices	Multivariate	Outside directors—positive relationship; splitting the roles—no relationship
Vafeas and Theodorou (1998)	UK- 250 listed firms 1994	Outside directors	MB	OLS	No relationship
Dulewicz and Herbert (2004)	UK- 86 listed firms 1997-2000	Outside directors	Cash flow return/total	SPSS	No relationship

			assets		
Lee and Filbeck (2006)	US- 2000-Compustat data-1013 firms (less than $18 million)	Board size	ROA	OLS	Negative relationship
Eisenhardt and Schoonhoven (1990)	US- 1978-1985	Board size	Sale growth	Multiple Analytical	Positive relationship
Sundaramurthy et al. (1997)	US- 261 firms adopted 486 antitakeover 1984-1988	Outside directors and role duality	Market reaction to cumulative average abnormal return (CARs) from adoption antitakeover provisions	Regression analyses (OLS)	Outside directors and role duality—increase the negative impact of adoption
Rechner and Dalton (1991)	US- 1978-1983 230 Fortune 500 firms-	Role duality	ROI, ROE, and profit margin	OLS	Negative relationship
Villalonga and Amit (2006)	US- 1994-2000 Fortune 500	Family directors	Tobin's Q	Multivariate OLS regression	Positive relationship
Anderson and Reeb (2003)	US- 1992 S&P 500	Outside directors (in family firm)	Tobin's Q	OLS	Positive relationship
Bhagat and Black (2002)	US- 1988-1991	Outside directors and board size	Tobin's Q, ROA, ROS, and market return	OLS, 2SLS	Negative relationship with board size and no relationship with outside directors
Bhagat and Bolton (2008)	US- 1990-2002 1990-2003 1990-2004	Outside directors and role duality	Risk-adjusted Shareholder Return and operating Rate of Return	Simultaneous Equations	Contemporaneous and subsequent operating performance negatively correlated with board independence and positively correlated with role duality.
Coles et al. (2008)	US- 1992-2001	Outside directors	Tobin's Q	OLS, 3SLS	External directors—

		and board size			negative for high R&D firms; Board size—positive for large diversified firms
Klein (1998)	US- S&P 500 firms 1992-1993	Outside directors	ROA, market returns, and Jensen‘s productivity measures	OLS	Negative
Agrawal and Knoeber (1996)	US- Forbes 800 firms 1988	Outside directors	Tobin’s Q	2SLS	Negative
Daily and Dalton (1992)	US- 100 US listed firms	Role duality	ROA-ROE-PER	Regression	No relationship
Rosenstein and Wyatt (1990)	US- 1251 external directors 1981 to 1985	Outside directors	Share prices	OLS	Positive relationship
Mehran (1995)	US- 153 firms 1979-1980-	Outside directors	Tobin’s Q and ROA	OLS	No relationship
Yermack (1996)	US- 452 firms 1981-1991	Outside directors and board size	Tobin’s Q and ROA	OLS, FE	No relationship for board independence and negative relationship with Q and board size
Hermalin and Weisbach (1991)	US- 134 firms 1971-1983	Outside directors	Tobin’s Q ROA	OLS, 2SLS	No relationship
Schellenger et al. (1989)	US	Outside directors	ROA, ROE, RET, and RET/STD	OLS- 526 firms 1986-	Positive relationship
Zahra and Stanton (1988)	US- 100 firms 1980 to 1983-	Outside directors	ROA and ROE	OLS	No relationship
Baysinger and Butler (1985)	US- 266 firms 1970 and 1980	Outside directors	ROE	OLS	Positive relationship

3.6.1.3 Chief Executive Officer (CEO)

The CEOs are very important in every organization as they play a primary role in creating value for the shareholders (Brian, 1997). Defond and Hung (2004) stress that the CEO is able to incorporate and follow governance provisions in a firm to improve its value. Moreover, the investors are more interested to invest in the firms where the corporate governance provisions are higher and well implemented, because these firms are more likely to create value for those shareholders (Morin and Jarrel, 2001). It is argued that the CEO's position and their proper remunerations have an effect on the value of the firm because the decisions of the board about firing and hiring a CEO could affect the performance of the firm (Holmstrom and Milgrom, 1994). The underperforming CEO usually loses his job because he does not generate value for the shareholders and the board generally terminates his contract (Brickley, 2003). The shareholders who fire their CEOs presumably assume that their underperforming companies are a result of the performance of the CEO and they believe the successor will do better (Audas, et al, 1999).

Other issues relating to the role of CEO include the salary and the tenure. According to Monks and Minow (2004), the board is responsible for determining the salary and the proper remuneration for the efforts of the CEO. Therefore, the board usually align the interest between CEO and firm by linking the earnings of a CEO with the way the firm is performing. It is suggested by Yermack (1996), that the CEO is motivated by such an action and will perform better as his financial interest is associated with the performance of the firm. In addition, the tenure of the CEO is a vital determinant of the performance of the firm. The hiring contracts of the CEOs are usually based on short-terms and that bring concern for the CEOs about the performance of the firm during their tenure. Bhagat and Jefferis (2002) argued that the stock price in such period could not be reasonably considered as a proxy for corporate performance as the CEOs set their objectives for short and medium terms. However, Heinrich (2002) states that the management team could provide some incentives based on long term performance which drives the CEO to plan for a longer strategy.

The relationship between the turnover of CEO and firm performance is negative because the shareholders stop investing in these firms as the confidence is lost (Dedman and Lin, 2002). Huson et al, (2004) declare that shareholder returns and operational performance in both UK and US companies have shown an improvement in the following 36 months from CEO

replacement. Hillier et al (2006) found that a negative reaction occurred on the day of announcement.

3.6.1.4 CEO Duality

The separation of the roles of Chief Executive and Chairman has been a key element within the development of UK corporate governance reforms process and from the Cadbury Report onwards. Given the importance and the particular role of the chairman at the head of the firm, it is better to be separated from the Chief Executive's role (Cadbury Report, 1992) otherwise if these are combined in one person then it represents a significant concentration of power. The Cadbury Report recommended the acceptance of division between both roles to ensure there is a balance of power and authority in the board. Therefore, currently a combined role of Chairman and Chief Executive is a controversial arrangement for UK listed companies.

The CEO Duality has recently become a common problem in the board deliberations. Jensen (1993) states that for the board to be effective Chief Executive officer role should be separated from the chairman's; in other words both positions should not be held by one individual. Also, he believes that CEO Duality causes information problems as he provides the information for the board and determines the agenda. Agency theory has supported the preference for a separation of the Chairman and Chief executive as there is a potential concern for the CEO to dominate the board and that reduces the effectiveness of board monitoring (Finkelstein and D'aveni, 1994). CEO Duality plays a crucial role in affecting the firm's value, on a positive side the agency cost is eliminated between the Chairman and Chief Executive when one person holds both roles (Alexander et al, 1993). The impact of chairman independency on firm's performance and value has been examined. For instance, Bhagat and Black (2002), Sanda et al, (2003) and Ogbechie et al. (2009) all argued that firms are more valuable when the CEO and board chair positions are separate. But, Dahya, Garcia and Bommel (2009b) investigate the impact of splitting the roles of CEO and chairman on corporate performance in 1124 UK firms over the period 1986 to 1997.They find that companies separating the combined positions of CEO and chairman did not experience absolute development in corporate performance. Dahya, Garcia & Bommel (2009b) find no differences in corporate performance between companies that combined the roles of CEO and chairman, and other companies that separate the roles.

However, on a negative side, CEO Duality affects the performance of the firm adversely as the board is unable to replace the underperforming CEO. Also, the CEO could pursue his own interest at the expense of the shareholders and that could create agency costs where the shareholders pay more monitoring and residual costs (White and Ingrassia, 1992). Holding both positions is contrary to the principles of corporate governance and it affects the value of the firm in a negative way because of lack of discipline of the CEO by the board as confirmed by Goyal and Park (2002).

Coles and Hesterly (2000) argue that both separation and duality of Chairman and CEO have no different effect on firm financial performance and such relationships depend on the board's composition. In addition, a further study suggests that no affect has been recognized whether dependant on separation or duality of the roles of CEO and Chairman on financial performance (Conyon and Murphy, 2000). Brickley et al (1997) examine some issues relating to CEO duality in large US firms. Their findings suggest that accounting performance is not related to whether the two roles are separated in the companies or not. Another study by Boyd (1995) utilising data from US firms found no evidence to suggest that CEO duality has an adverse impact on shareholder wealth. Cosh and Hughes (1997), in a study based on a sample of the largest UK companies; show that the percentage fell from 94% in 1981 to 50% in 1996 for firms that combine the two roles.

Cadbury Committee compliance survey findings have been reported by Dedman (2002), where 684 firms' reports have been examined for the period from June 1993 and December 1998. In the largest 500 firms, the reports generated by this survey showed that there are more than 80% of the firms with the separation of chief executive and chairmen roles, and more than 70% of smaller companies (by market capitalisation) have split the two positions.
A study of Times top 1000 companies in 1998 found that 58% of respondents have divided the role of chief executive officer and the chairman, but it is reported that there had been an increase to77% by The UK Code of Corporate Governance (Conyon, 1994). Dedman (2002) examined the 300 non-financial constituents of the FTSE All Share Index between 1989 and 1995. She found out that there is an increase from 68% to 86% between 1989 to 1994 with regards to the separation of the two positions of CEO and chairman within the selected companies. The relationship between executive remuneration and performance is examined by Conyon and Peck (1998). They tested UK companies and their findings indicate that there is no evidence that firms with CEO duality are paying excessive remuneration.

Generally, there is a significant increase within the companies that comply with the corporate governance codes with regards to duality, as the majority of public listed companies split the roles of CEO and the chairman. The rest of the companies which yet to comply seem to have managers embrace entrenchment signs (CEO age, Ownership and tenure), as found by Dedman (2002) and Weir, Laing and Wright (2005).

3.6.2 Board independence

The UK scandals of the 1980s, for example Polly Peck and Maxwell Communications have led to several reforms throughout the 1990s. Higgs (2003) report was designed to strengthen the role of non-executive directors, particularly independent non-executive directors. In the UK, the Combined Code (2003) classified the directors as "independent" or "not independent". Also, it expects that the number of executive directors and non- executive directors should be balanced by the board as the domination of the board's decision taking could become limited for individual or small groups of individuals. In the US literature, directors are categorised into three categories: outsiders and grey (Lehn et al., 2004).There are many benefits from using independent directors in the corporate decision making; the primary rationale is that outsiders provide an effective mechanism to monitor the managements' actions, to balance the different perspectives, to prevent abuses of power, and to broaden the experience base of the governing body of the company.

Several empirical works have examined the relationship between the board composition and the performance of the firm. The results found in the previous studies have yet to indicate statistically any significant positive relationship between better financial performance and the degree of board independence. A study carried out by Bhagat and Black (2002) in the US on the relationship between board independence and firm performance, where independence in this study is measured as the fraction of independent directors minus the fraction of insiders, and different firm's performance measures such as Tobin's Q, Sales to Assets Ratio, Return on Asset and Market Adjusted Stock Price Returns. The results indicate an inverse correlation between firm performance in the recent past and board independence. The control variables utilised in the study are ownership characteristics, firm size, industry and board size.

Even though Bhagat and Black (2002) found in their study that underperforming firms were expected to increase the degree of board independence, they did not suggest that there is any

evidence to support such strategy. However, Bhagat and Black (2002) argue that no evidence has been found about greater board independence increasing the performance of a firm. The direction of causality of relationships is probably viewed as a certain issue of research. The weak results found by Bhagat and Black and other similar studies in previous research do not support the predictable intuition that favours a high degree of independence in the board. Because they found that firms with greater independent board are not necessarily performing better (Brown and Caylor, 2004).

However a stream of research shows a positive association between the proportions of outside directors and firm financial performance (e.g. Faleye, Hoitash and Hoitash, 2011). Baysinger and Butler (1985) examined 226 large US companies over the period of 1970 - 1980. They studied the differences in financial performance as a function of board composition of those firms. Their findings indicate that the percentage of independent outside directors on the board has a positive lagged impact on the average return on equity of the company relative to the average return of the industry. This result shows that firms with more independent outside directors on their boards in the beginning of the period enjoyed better financial performance in the late 1970s than other firms which have lower outside directors. However, in the same study the authors found no evidence that firms underperforming in the start of the period reacted by appointing outsider directors in the end of the period.

Other studies have proposed that firms might perform worse with a higher proportion of independent directors. For instance, Yermack (1996) details that a negative correlation between the percentage of independent directors on the board and Tobin's Q of the same period but using different performance measures such as operating income/sales, operating income/assets and sales/assets, he found no significant correlation. It is considered that the proportion of independents on board is an internal assessment that is anticipated to affect the value of the firm positively (Agrawal and Knoeber, 1996). But the findings showed the opposite of their suggestion and they could not provide an explanation for the obtained result. But they suggest that an explanation provided by Hermalin and Weisbach (1988) could be considered as reasonable. Hermalin and Weisbach explained that outside directors are appointed on the board of underperforming firms rather than the opposite. Weisbach (1988) examined the impact of board composition on the relationship between underperforming firms and CEO turnover. He found that firms with the outsiders dominating the boards were significantly more likely to replace the CEO on the basis of the performance of the firm,

measured by stock return and changes in earnings before interest and taxes, than firms with insiders dominating the boards. Thus, independent boards of directors are likely to be attached to the corporate performance when it comes to CEO compensation and turnover (Dahya et al. 2002). Rosenstein and Wyatt (1990) suggest that the stock market reacts positively and produces abnormal returns for the appointment of independent directors. However, there is no evidence that independent directors improve the value of the firm or increase its profitability, indeed the correlation might be even negative (Kaplan and Minton, 1994). In a similar way to Hermalin and Weisbach they suggest that a likely reason is that poorly performing firms tend to add more outside directors.

Bhagat and Black (2002) examined the relationship between board independence and firm performance (measured as Tobin's Q, turnover ratio, return on asset, sales per employee and operating margin). Their study was based on US firms and they found a negative relationship. Consequently, there is no significant correlation between board composition and different performance measures. Klein (1998) examined the relationship between firm performance and the structure of board committee for the US firms. Her findings showed that the relationship between the percentage of executive directors and firm performance is not significant. But she found that the percentage of insiders on finance and investment committees is linked positively with measures based on accounting and stock performance. Thus, the executive directors are better involved and informed about the operations run in the firm. Her findings also indicate that there is a weak but positive relationship between the presence of outside directors and firm performance. In addition, Vafeas and Theodorou (1998) examined empirically the relationship between the characteristics of the board and firm performance in 250 UK firms. They found out that no association is clearly shown between firm performance measured as market to book ratio and board characteristics, for instance, board composition, board committee, leadership structure and managerial ownership. However, Pearce and Zahra (1992) found in 1986 that a higher percentage of outsiders on the US boards resulted in better financial performance (accounting measures). Also, Schellenger et al. (1989) found a positive relationship between the percentage of outsiders on the board and the firm's performance as measured by risk-adjusted market return.

There are different explanations for understanding why an increase in independency on the board has not promised an improvement in performance. The existence of the inside directors on the board could add to the value of the firm and are considered a major reason in

improving its performance. An optimal board is comprised of insiders, independent and affiliated directors who enhance the board with different skills and experience (Baysinger and Butler, 1985). Weisbach (1988) revealed that the presence of inside directors on the board may attract other directors to assess their performance as potential CEOs for the future. Previous research had examined the independency with other issues such as dividend policy, capital expenditure and CEO appointment.

In the UK, Dahya and McConnel (2005b) examined the relationship between the outsiders' representation on the board and the appointment of the CEO. Firstly, they analysed the appointment of 523 CEOs between 1989 and 1999. The findings show significant positive correlation between the possibility of appointing an outside CEO and the percentage of outside directors on the board. Also, higher abnormal stock returns are generated by the appointment of an outside CEO compared to the appointment of an inside CEO. However, Hamill, McGregor and Rasaratnam (2006) argue that a temporal pattern could emerge with respect to the market's assessment of the incremental benefit of having additional outside directors. They carried out an empirical study on the UK FTSE 350 companies for the period 1990 to 2000, their findings suggesting that a temporal impact apparently exists with respect to the perception of the market of the value of the outsiders' director appointment.

Another study by Vafeas (2003) examined the relationship between NED's independence and length of board tenure. Their findings suggest that non- executive directors, who serve for a long period, with more than twenty years, tend to be not independent because they have a higher equity investment. Additionally, they have become members on the board committees whether nomination or compensation committees. These findings show the importance and the need to set a term limit for the directors. Cotter and Silvester (2003) studied 109 public Australian companies and found that there is a link between full board independence, substantial shareholders and management ownership. They found that the independence level is high whenever there is an absence of large shareholders and there is a poor management. However, they found no strong link between firm value and board independence and that could be a result of the short period in which the study was held, covering one reporting year. A different study on US firms based on size and structure of director compensation and board independence was carried out by Ryan and Wiggins (2004).The final sample comprises 1,018 firms. Financial and accounting data come from the Standard & Poor's Research Insight database and the board compensation data for 1995 and 1997 from the Standard & Poor's

ExecuComp database, which provides information on firms in the S&P 500, the Midcap 400, and the Smallcap 600. The findings of Ryan and Wiggins (2004) indicate that powerful executives and weak boards lead to ineffective policies for director compensation.

Beekes, Pope, and Young (2004) examined the link between accounting quality and board independence for UK non- financial firms. This study indicates that board composition is not an essential element for financial reporting quality. For measuring the board composition, a binary variable is utilised in this study which is a categorical variable as it takes a value of one if the fraction of outsiders for firm *i* is above the value of the median of the sample and zero otherwise. In contrast, for the accounting quality measures earnings timeliness and conservatism are utilised. The findings reveal that with respect to bad news in firms with higher percentage of outside directors there is a superior timeliness in earnings. Mura (2007) studied 1100 UK non-financial firms and reported an efficient monitoring by the non-executive directors. He confirms that the boards have been more effective on behalf of other shareholders since the Cadbury and other codes have been issued in UK.

Cotter et al (1997) examined the effects of director incentive and board composition on the tender offer process. The hypothesis was that outside directors could have a bigger incentive to maximize the shareholder value if they have reputation capital at stake. It is measured by the fraction of the board that hold one additional outside directorship at least. They analysed 140 tender offers that occurred over the period 1988-1991 and the findings indicate that the percentage of directors holding added directorship was linked positively to the initial tender offer, the abnormal returns surrounding the announcement of the first tender offer and the total shareholder increases. The conclusion was that outside directors with reputation capital at stake are more likely to seek to maximize the shareholder value. Byrd and Hickman (1992) examined a sample of tender offer bids by 111 companies between 1980 and 1987. They examined the relationship between the presence of independent outside directors and the return to shareholders of bidding firms. They hypothesized that shareholder interests are better protected by independent boards. They found that return to bidder companies with independent boards was significantly less negative compared to non-independent boards.

Examining the behaviour of outside directors within the perspective of takeover activity is considered effective and capable of providing valuable insight into the effectiveness of outside director monitoring. Brickley et al (1994) studied the effect of outside directors regarding the adoption of “poison pill” takeover defences. Since the board is capable of

adopting the poison pills without the approval of the shareholders, then the presence of outside directors on the board would be tested in order to pursue the maximization of shareholder value. They examined a number of US firms which adopted poison pills between 1984 and 1986. The hypothesis was that if outside directors represent the interest of shareholders then the proportion of outside directors on the board should decrease the opportunity to use the poison pills which damage the shareholder wealth. They found that the stock return in the two-day around the announcement of adopting the poison pills was positive as the outside directors represent the majority of the board. The opposite is found when the outsider directors were less than half of the board.

Desai, Kroll and Wright (2005) studied the effect of outside board monitoring on acquisition outcomes. A number of firms were selected regarding their announcement of completing a major acquisition process from 1985 to 1995. They divided the sample into different categories, owner-controlled firms and manager-controlled or owner-manager-controlled firms. They found that the outcome of the acquisition for firms in the manager-controlled sample was affected by the percentage of the outside directors on the board and the stock ownership of the outsiders. However, the opposite results were observed for the acquisition outcome for the owner-controlled firms.

The Institute of Chartered Accountants in England and Wales (2007) discuss independence as criteria for the directors in the UK and the US. It is argued that the criteria established in the Combined Code in the UK and the Sarbanes-Oxley Act in the US was based initially on independence in appearance. Also, the discussion underlines issues of 'independence' which could affect the firm's operations. It is believed that the effectiveness of the board is better obtained with independent leadership, improving the dynamics of the boardroom and objective decision-making process. However, it is also argued that the board influence could have a bad effect with too great an emphasis on board independence. In summary, the US boards are likely to play a stronger monitoring role than the UK boards due to the dual board structure while in the UK the chief executive officer does not serve as chairman of the board. Guest (2008) discussed that this perspective is supported by the UK evidence on the impact of outside directors on either firm performance in general (Vafeas and Theodorou, 1998) or on other monitoring tasks (Franks et al, 2001). However, the US evidence shows that there is a positive impact achieved from the outsider proportion on specific tasks (Hermalin and Weisbach, 2003). Meanwhile, the presence of NEDs makes the board more independent in its decisions, and brings more skills, expertise, experience and business network contacts

(Haniffa and Hudaib, 2006; Baranchuk and Dybvig, 2009). A high percentage of NEDs on the board is associated with easy access to all information required to make accurate and high quality decisions, which can positively affect corporate performance (Nicholson and Kiel, 2007).

3.6.3 Audit Committee

Since the launch of the Cadbury report of 1992 which was followed by some several reports of corporate governance, a considerable increase has been noticeable in the UK within the companies for adopting voluntary Audit Committees. Although in the UK the corporate governance guidelines have not been compulsory as in the US, audit committees in both countries are considered to have the potential to play a vital role in the emergence of corporate governance provisions.

The Cadbury Committee (1992) and Collier (1992) define the audit committee as the existence of a sub-committee of the board consisting of a large number of non-executive or independent directors with duties of monitoring auditing activities. Following the development in worldwide corporate environments, particularly, due to the several corporate collapses between 2001 and 2008, there has been an increased emphasis suggesting only independent non-executive directors should be members of the audit committee. In the Combined Code 2003, Section C.3.1, page 16 states that: *"The board should establish an Audit Committee of at least three, or in the case of smaller companies, two members who should all be independent non-executive directors. The board should satisfy itself that at least one member of the Audit Committee has recent and relevant financial experience."*

Jensen and Meckling (1976) announce that there are some corporate governance mechanisms proposed by the agency model to reduce the agency costs linked with the separation of ownership and control. Tafara and Peterson (2007) argued that the shareholder dispersion model followed in the UK was similar to the US; the corporations necessarily establish different corporate control forms in which the audit committee is one. However, Collier (1992) argued that the rise in the adoption of Audit Committees in the UK is firmly associated with the increase in the emphasized importance of the existence of non-executive directors on the board.

Based on the agency model, the Cadbury Report (1992) and later revisions have argued that audit committees have been an added control mechanism that secures and promotes the

interests of shareholders. It has led to achieve this interest by increasing accountability and fulfilling and enhancing the effective financial management of the firm (Cadbury, 1992). In addition, an audit committee is considered another internal governance mechanism in which the impact is to improve the quality of financial management of the firm and consequently its performance (Weir et al, 2002). From an agency perspective, an effective audit committee fulfils its oversight role when it is independent of management, has a level of financial and industrial experience to carry out its duties, and actively monitors internal controls and financial reporting (Carcello, Hollingsworth, Klein and Neal, 2006). Rainsbury et al. (2008) point out that the presence of the Audit Committee is likely to reduce agency problems related to moral hazard and adverse selection, whether through oversight functions and monitoring in both reporting and auditing. Because the expectations were so high regarding the importance attached to the audit committees in improving the corporate governance (Rezaee, 2009), caution has been introduced in order to reduce such expectations (Turley and Zaman, 2007; Spira, 2002). Also, other events represented in the collapse of Enron and the downturn of the global economy adjusted these expectations because their (Audit Committee) effectiveness and activities depended on several factors, and not all are considered within their influence (Kalbers and Forgarty, 1993). However, Zhang et al (2007) state that the Audit Committee is still valued as one of the crucial governance mechanisms that are recommended for improved corporate accountability, transparency and reporting quality in firms. Therefore, restoring market confidence and stopping any panic divestment, it was crucial that guidelines and structures were provided that could diminish the possibility of corporate failures due to lenient governance regime and weak corporate control

The impact of the audit committee on performance has been relatively slightly reported (Weir et al, 2002). The board subcommittee structure and quality increases the quality for the managers responsible for monitoring duties in the firms as found by Vafeas (1999). A study conducted by Wild (1994) on the quality of managerial accountability to shareholders before and after the formation of an audit committee in the US. He concluded that the market reacted favourably to earnings reports after the establishment of an audit committee. In contrast, Klein (1998) examined whether audit committee and board characteristics are related to earnings management by the firm in the US. They found that the presence of an audit committee or its structure causes no effect on a range of accounting and market performance measures; in addition, there is lack of evidence to support an analysis or observation about the structure of board subcommittees significantly affecting performance

(Vafeas and Theodorou, 1998). Vafeas and Theodorou (1998) studied the association between audit committees and firm performance, using the market to book ratio of total assets as a measure of firm performance, and found that there is no link between firm performance and the composition of audit committee. Moreover, they found that the percentage of non-executive directors on the board has no association with firm performance.

Bedard and Gendron (2010) reviewed 103 audit committee studies. They identified each paper objectives, theoretical perspectives, data gathering methods and country studied. They solely focused on 85 studies evaluating AC effectiveness through quantitative measurement for 85 studies. They examined 113 distinct analyses ensuing from 85 articles indicates that the proportion of studies finding a positive association with effectiveness varies greatly along the characteristics. In decreasing order of proportion, the results are: presence of an audit committee (69%), independence (57%), competence (51%), number of meetings (30%), and size (22%).

Even though code of corporate governance in UK requires all public listed companies to appoint an audit committee, there are some uncertainties by analysts and critics questioning how effective audit committees are in improving the financial reporting standard of the firms and bringing it to higher levels. It has been suggested that there are some problems found in the researches in this area as it is difficult to witness in practice how these committees work, assuming that issues being discussed at such meetings are of a sensitive nature (Spira, 2002). However, Ghafran and O'Sullivan (2013) reviewed recent empirical research seeking to investigate various aspects of audit committees' governance role. Evidence on the stock market reaction to audit committee issues suggests that investors both welcome the presence of audit committees and react positively when members are appointed with relevant expertise. They found that there is a significant amount of evidence offering support to current regulations concerning the desired characteristics of audit committees. Regulators believe that more frequent audit committee meetings indicate the audit committee's diligence in effectively discharging its responsibilities so that agency problems are minimised (Raghunandan and Rama, 2007). In addition, the presence of audit committees is likely to be associated with a high quality reporting system (McDaniel et al., 2002, Beasley et al., 2009).

3.6.4 Executive remuneration

Executive remuneration has been explicitly discussed and reviewed by the Greenbury Report (1995). The Remuneration Committee is a sub-Committee of the board which mainly determines the executive remuneration. It is recommended by the Combined Code (2006) that remuneration committees should be composed only of independent non-executive directors. Conyon and Murphy (2000) argue that executive directors in the UK do not earn as much as their counterparts in the US and the research studies in the UK have been conducted in different contexts. However, studies on executive remuneration have mostly focused on the senior executives of listed firms (e.g. Main et al., 1993; Conyon, 1999).

Jensen and Meckling (1976) argue that the principal-agent relationship is normally considered in the context of understanding the executive remuneration contracts as the managers (agents) are interested in different incentives to the shareholders (Principals). Due to the moral hazard problem where some of the managers' actions are hidden from the owner, the manager could follow his own interest to the detriment of the owner without any punishment (Holmstrom, 1979).

It is argued that agency theory foresees that well-prepared and agreed compensation packages in advance, which assist in aligning the shareholders' and managers' interests, could be crucial in alleviating agency problems in firms. The Principal-agent model proposes that the managers' self-interest and incentives could be aligned with the goal of the firm by aligning the managers' compensation to the performance of the firm. Also, dispersed shareholders might aim to persuade managers to achieve shareholders' interest by the most appropriately designed compensation contracts. The writing of the employment contract is considered a vital method where the owners have the ability and advantage to control their managers' actions (Fama and Jensen (1983a and 1983b). However, the existence of information asymmetry which affects the CEO decisions and the investment opportunities of the firm have an impact on constructed contracts. But Jensen and Murphy (1990) observe that the remuneration contract may alleviate the existing issues by realigning the managers' incentives with the principals'. There are some different incentives that could be included in the compensation policy, such as stock options, equity ownership, performance-related pay or bonus and LTIP are applied to bring together the goals and the interest between the managers and the owners. In addition, it is emphasized by agency theorists that there is potential for

these incentives to guarantee that the interests are aligned between shareholders and management. Frequently these incentives are often presented within the same package of structure and level of executive remuneration (Jensen and Murphy, 1990). However, if the pay-setting process is manipulated by any actions, executives could construct a reward system separate from performance or considering shareholders' interests (Bertrand and Mullainathan, 2001). Thus, compensation contracts are required to include the managers' preferences and firms' objective aligned together.

Inside the perspective of agency theory, where it is generally believed that the agent is assumed as both risk and effort averse and the principal is presumed to be neutral or averse regarding risk, it is likely expected for the executive compensation contracts to offer an insurance and incentive effect (Ezzamel and Watson, 1997). Holstrom (1979) discusses a potential association between executive remuneration and owner-oriented performance, as he mentions that in some cases, where the managers' efforts and outcome are noticeable, the owner can control the agent by monitoring and the compensation of the manager will be limited despite the level of outcome. However, when the outcome is noticeable and the effort is unnoticeable, the reward of the manager is linked to the output gained in order to encourage the agent to increase the outcome by exerting greater effort.

Executive remuneration and performance is considered as a potential topic used by researchers keen to test whether shareholder or managerial interest prevail in listed firms. The main objective of a large number of studies has been focused on executive remuneration and performance, as referred to agency theory, or the other aspects between executive remuneration and firm size, as based on managerialism. The potential link between executive remuneration and company performance is supported by the proposal that firms have a common goal in maximizing shareholder wealth which is achieved and affected by management decisions and that directly influences their rewards depending on the output (Lewellen and Huntsman, 1970).

The relationship between firm performance and compensation policies are linked positively according to Jensen and Murphy (1990) and Gaver and Gaver (1993). It is confirmed that firm performance which used annual stock return as a measure is significantly associated with compensation and this relationship is positive, as argued by Core et al. (1999). In another study, Cyert et al. (2002) studied the negotiation process between the board of

directors and the CEO in the US in setting an equity-based compensation for the CEO and found that there is a strong positive relation between compensation and economic performance of the firm. Brick, Palmon and Wald (2006) examined the relationship between CEO compensation and board characteristics. The matched compensation and firm data are obtained from Standard and Poor's Execucomp and Compustat data sets for 1441 firms from 1992 through 2001 for the US firms. They found that there is a negative association between the excess compensation paid to directors and firm performance by controlling CEO, firm and governance characteristics.

However, regarding the relationship or impact of firm size on compensation policies, the results are mixed. In a study in the US on the relation between the investment opportunity set and financing, dividend, and compensation policies, Gaver and Gaver (1993) results indicate that level of cash compensation with the firm size is positive and strongly associated. In contrast, the findings of Jensen and Murphy (1990) show that in small firms CEOs are likely to have more compensation based incentive than CEOs in larger firms. It is explained that in bigger firms there is significant diversification of ownership and the management are monitored and controlled. In general, the total compensation could embrace several elements, salary, bonus, and value of restricted stock, saving and thrift plans and other benefits. Cyert et al (2002) found that the relationship between firm size and contingent compensation is significant and positive, as the overall sum of CEO compensation is associated with firm size. However, Palia (2001) argues that both compensation and firm value are difficult to be measured because they are determined and affected by several characteristics related to the firm and they are not observable, intangible assets are different, different power of markets and differing managerial monitoring mechanisms. Garen (1994) analysed a simple principal-agent model to determine how well it explains variations in CEO incentive pay and salaries for 415 corporations in the US. He found in his study that while the size of firms increases the pay performance, sensitivity is reduced due to the impact of residual standard deviation in returns.

Table 3.4 Previous studies examined the relationship between directors' remuneration and performance.

Author and Year	Country	Independent variables	Dependent variables	Relationship
Conyon (1997)	UK	Directors' compensation, separating the roles of CEO and chairman	Shareholders' return, directors pay	Positive, No relation
Florackis and Ozkan (2008)	UK	Managerial compensation	The agency cost	Negative
Ezzamel and Watson (1997)	UK	Cash Compensation	Return on equity Shareholder return	No significant correlation between ROA and Pay. Significant correlation for shareholder returns in one year only
Main, Bruce and Buck (1996)	UK	Cash compensation and share options	Shareholders return	Strong correlation between shareholders' return and pay
Gregg, Machin and Szymanski (1993)	UK	Cash compensation	Shareholder return and EPS	Weak correlation
Harvey and Shrieves (2001)	USA	The presence of outside directors and block holders, the use of leverage and CEOs near or at retirement age	The use of incentive compensation	Positive

Kamg et al. (2006)	USA	Compensation structure Equity-based compensation	Investment, investment incentive	Positive, positive
Brick et al. (2006)	USA	Q, sales, Log employees, Return on Assets, Cash flow, stock validity,	Change in Q and Average ROA	Negative
Perry (1999)	USA	Incentive compensation for independent directors in the board, the fraction of independent directors on the board and institutional ownership	CEO turnover following poor performance, stock-based incentives	Positive, positive
Jiraporn et al. (2005)	USA	Weak shareholders' right, potential managerial entrenchment	Compensation, CEO pay	Positive, positive
Cyert et al. (2002)	USA	The existence of largest external shareholder on the board, the equity ownership on the board	The size of CEO equity compensation, managerial compensation control	Negative, positive

3.6.5 Managerial shareholding

It is suggested that directors' shareholding is viewed as an incentive mechanism which has a prospect to align the shareholders' interests with those of the managers. Managers will behave differently when they own large portions of the firm. In this case managers, shareholders and the whole firm have similar interests (Gugler, 2008). Taking the hypothesis of convergence of interests as a basis, Jensen and Meckling (1976) suggest that the relationship between firm performance and managerial ownership is positive and linear. Consequently, extending their work and based on their idea, other studies such as Morck et al., (1988) and McConnell and Servaes (1990) and (1995) propose that the relationship between agency costs and managerial ownership is non-monotonic. Director ownership of shares is viewed as one of the important internal mechanisms of corporate governance which suggested to possibly solving the agency problems. There are two contrasting theoretical propositions: entrenchment and convergence-of-interests.

Agency theory suggests that director share ownership helps in reducing the conflicts of interest that exist between shareholders and managers (e.g., Jensen and Meckling, 1976; Fama, 1980; Jensen, 1993). This *convergence-of-interests* model maintains that as the proportion of equity owned by directors increases, their interests and those of shareholders become more aligned and the incentive to indulge in opportunistic behaviour diminishes. This is because the greater their financial stake represented in the shares owned means it is more costly for them as well if the shareholders' wealth maximisation suffers. Consequently, there are additional incentives for directors who possess large numbers of shares to be active in their monitoring to the actions of the managers which could decrease agency costs and improve the financial performance of the firm.

However, another strand of the theoretical literature suggests director *entrenchment* as an alternative hypothesis to *convergence-of-interests* (e.g., Morck et al., 1988; McConnell and Servaes, 1990; Short and Keasey, 1999). The entrenchment hypothesis proposes that the market forces (discipline) both internally and externally could assist in aligning shareholders' interests with those of the managers when directors share ownership is at low levels.

However, it contends that at high levels of shareholding, directors may hold sufficient voting power to protect themselves against such disciplinary forces, and as such directors will prefer to pursue non-wealth maximising goals. This is because the private benefits in the form of perquisites consumption, such as guaranteed employment with an attractive salary that will accrue to directors, are greater than the utility they will obtain from pursuing optimal projects that will increase the wealth of all shareholders. This results in director entrenchment in which other shareholders are unable to remove or influence the actions of the managing directors, even in the face of serious under-performance or misbehaviour. In this case, the director share-ownership-performance relationship is expected to be negative. Stulz (1988) models entrenchment as occurring from a lack of external market discipline where it is more difficult to remove managers when they control large portions of the company's stock. Denis et al. (1997) propose that ownership by company directors reduces the likelihood of internal control systems being able to exert discipline on management. Faccio and Lasfer (1999) also contend that managerial entrenchment may result in the CEO creating a board that is unlikely to monitor. Further, the theoretical literature suggests that combining the *convergence-of-interests* hypothesis with the *entrenchmen*t hypothesis gives rise to a non-linear director share-ownership-performance relationship (e.g., Morck et al., 1988; McConnell and Servaes, 1990). This means that at low levels of director share-ownership, interests' alignment may help increase firm financial performance. However, at high levels of director share-ownership, director entrenchment impedes beneficial takeovers, and thus decreases firm value.

Jensen and Meckling (1976) argue that as the ownership of the company by inside managers increases, so too does their incentive to invest in positive NPV projects and reduce private perquisite consumption. Ownership provides incentives to managers by tying their wealth on a one-to-one basis with the company's shareholders. Managers capture a larger fraction of the gains from their decision making their incentive to increase shareholder wealth increases. However, the incentive benefits of increased managerial ownership come with the increased control afforded to management through higher shareholdings. Higher ownership allows managers to remain in their position and heightens the extent of agency problems within the company. In addition, the control afforded by higher managerial ownership suggests that director shareholdings will be a significant determinant of other aspects of internal governance.

A number of empirical studies have attempted to verify Jensen and Meckling (1976)'s theoretical arguments by examining the role of managerial ownership in company decision making. Evidence of the positive role that managerial equity ownership may play in investment decisions is provided by Agrawal and Mandelker (1987) and Denis et al. (1997). In addition, both Lang et al. (1995) and Fenn and Liang (2001) find evidence of a positive relationship between managerial equity ownership and cash distributions to company shareholders following asset sales and amongst companies with high levels of free cash flow respectively. Ang et al. (2000) find that managerial equity ownership and control are correlated with higher levels of operating efficiency in a sample of privately held US companies. These authors suggest that such companies provide a means of investigating the zero agency cost base case of Jensen and Meckling (1976) where a sole manager owns and controls the company. The authors conclude that their results support the theories put forth by Jensen and Meckling (1976) and Fama and Jensen (1983) concerning ownership structure and organisational efficiency. Lastly, Jensen et al. (1992), Denis and Denis (1994), and Denis and Sarin (1999) find that higher levels of managerial ownership lead to lower levels of board independence, lower cash distributions to shareholders, and less reliance on external capital markets for borrowing requirements. Bhagat and Bolton (2008) believe that there is a positive relationship between present value of shares owned by managers and companies' performance. Hossain et al. (2001) report a positive linear relationship between proportion of shares owned by managers and financial performance in the New Zealand market. Gelb (2000) indicates a positive relationship between managerial ownership and firm performance.

Mixed evidence is provided on the role of industrial focus, growth prospects, leverage, and other aspects of a firm's governance environment in impacting levels of managerial ownership [see Jensen et al. (1992), Denis and Denis (1994), Cho (1998), Denis and Sarin (1999), Himmelberg et al. (1999), and Demsetz and Villalonga (2001)]. Furthermore, Davies, Hillier, and McColgan (2005) examine the relationship between director shareholdings and firm value, measured by Tobin's Q, in a sample of 802 UK industrial listed firms for 1996 and 1997. Their findings reveal that Tobin's Q increases at director shareholdings level of 7% and then decreases at director ownership level of 26%. The positive relationship between firm value and ownership is attributable to managers holding higher equity stakes in highly valued companies with good investment opportunities, while a negative relationship may exist as a result of share sales following good performance or management increasing their equity ownership in response to a threat to their control following poor performance.

A number of empirical studies have also attempted to uncover evidence of a direct relationship between managerial equity ownership and firm value. Demsetz and Lehn (1985) fail to find evidence of a linear relationship between ownership concentration and firm value. However, several studies have tested for non-linearities when examining the direct relationship between ownership and corporate value. These studies generally attribute declining firm value as managerial ownership increases over certain ranges to the onset of managerial entrenchment. Examples of these studies are Morck et al. (1988), McConnell and Servaes (1990) and Hermalin and Weisbach (1991), who each document evidence of a non-monotonic relationship between managerial equity ownership and corporate value.

Several studies have attempted to examine the direct relationship that may exist between managerial shareholdings and firm value. Both Faccio and Lasfer (1999) and Short and Keasey (1999) find evidence of a cubic relationship between managerial shareholdings and firm value, which is consistent with the US findings of Davies et al. (2004) who find evidence of a highly non-linear relationship between managerial ownership and firm value, where value originally increases with ownership, then decreases, increases again, decreases again, and finally, increases with ownership at the highest levels of director shareholdings. Additionally, Vafeas and Theodorou (1998) and Weir et al. (2002) find mixed evidence on the relationship between managerial shareholdings and firm value. In their overall sample, Faccio and Lasfer find an insignificant relationship between ownership and firm value. The evidence reported here relates to their sub-sample of companies with growth prospects above the median firm for their overall sample of companies, as measured by the firm's Price-Earnings Ratio (P/E). Finally, Lasfer (2002) found that for firms with high growth prospects the relationship between managerial ownership and firm value is curvilinear in a similar manner to McConnell and Servaes (1990). However, for low growth companies the relationship is positive and linear. Lasfer concludes that low growth firms benefit fully from governance incentives which reduce the agency costs of free cash flow.

Morck et al. (1988) investigate the relationship between director share-ownership and firm value, as proxied by Tobin's Q using a cross-sectional sample of 371 *Fortune* 500 US firms in 1980. They report a non-monotonic relationship between director share-ownership and firm value. This suggests market value of firms' first increases, then declines, and finally increases slightly, as ownership by directors' increases. Specifically, Morck et al. (1988)

document a statistically significant and positive director ownership-performance link at lower levels (0% to 5% - interests convergence), a statistically significant and negative relationship at moderate levels (5% to 25% - entrenchment), and additionally a statistically significant and positive association at higher levels (above 25% - interests convergence) of director ownership.

Their evidence suggests that at low levels of director ownership, interests alignment help increase firm value, while at high levels, director entrenchment negatively affects financial performance. Recent U.S. and UK studies by McConnell and Servaes (1990), Hermalin and Weisbach (1991), Short and Keasey (1999), Weir and Laing (2000), and Davies et al. (2005) have supported the non-monotonic director share-ownership-performance relationship.
Various studies (Hermalin and Weisbach (1991), Short and Keasey (1999), and Lau (2004)) look at the relationship between managerial ownership and firm performance. Hermalin and Weisbach's findings indicate non-linear change in firm performance over a certain range of managerial ownership that is at levels of ownership less than one per cent corporate performances improved (Q increases with ownership). However, at levels of ownership greater than 20%, Q decreases with ownership. The results suggest that increases in ownership above 20% the management become more entrenched. Lau (2004) supports a cubic relationship of managerial ownership on corporate value, as suggested by Short and Keasey. Lau extends her analysis to cover three countries; United Kingdom, France and Germany. Likewise, the relationship between insider's ownership of the firm and Q is a significantly curvilinear relationship (McConnell and Servaes, 1990). Their findings show that the shape of the curve slope goes up to the point where insider ownership approaches roughly 40% to 50% and the curve slope then goes down a little.

Based on the onset of managerial entrenchment, previous studies (Hermalin and Weisbach, 1991; Morck et al, 1988; McConell and Servaes, 1990) suggest a non-linear relationship between managerial ownership and firm performance. Davies, Hillier, and McColgan (2005) propose that the tendency of management to maximise shareholder wealth is a function of three unobserved factors; external market, internal controls and convergence of interest. They put forward a quintic relationship between managerial ownership and performance (measured as Tobin's Q). They examined 802 UK industrial firms and found out that there is an interdependence relationship between, the level of investment in the firm, managerial

ownership and corporate value. The results also exhibit that managerial ownership influence the corporate value and vice versa.

Different studies, on the contrary, suggest that there is no relationship between firm performance and insider ownership. Demsetz and Lehn (1985), for instance, examined 511 firms in the United States in 1980. They found out that accounting profits rates and ownership concentration is not significantly related. However, their findings indicate that variation in ownership structure in their sample is explained by factors such as industry, firm size, and instability of profit rate. Extending Demsetz and Lehn, Himmelberg, Hubbard and Palia (1999) selected 600 firms randomly from the Compustat universe over the three-year period 1982-1984. They argue that managerial ownership changes would not have an impact on firm performance. Based on their results they view that there are common factors which determine the relationship between firm performance and managerial ownership. They suggest that examining the disclosed ownership percentage does not adequately capture important social dimensions of ownership. For example, directors and block holders may have a web of personal and business connections.

Cho (1998) examines the interdependence of ownership structure, investment, and corporate value among Fortune 500 manufacturing companies in 1991. His initial findings indicate that corporate value is affected by the structure of ownership because it initially affects the investment process. However, the simultaneous regression results show that investment determines corporate value, and the corporate value has an effect on ownership structure. In another study by Demsetz and Villalonga (2001), they found out that the relationship between firm performance and ownership structure is not statistically significant. Peasnell, Pope and Young (2005) used UK data to examine the relationship between managerial ownership and the use of outside directors. They found out that there is non-linear relationship between board composition and managerial ownership. In addition, they indicate that outsiders are able to assist in controlling agency problems linked with control and ownership separated, but they are limited for their help in control to low levels of managerial ownership. Thus, it is assumed that the managers are entrenched at the higher levels of managerial ownership. Similarly, the relationship between firm value and managerial ownership is reported to be weak by Faccio and Lasfer (1999).

A recent US study, Hutchinson, Gul and Leung (2005) looks at director entrenchment and governance problems. They use the free cash flow (FCF) problem identified by Jensen (1986) to proxy for the corporate governance problems. Their findings support the view of interest convergence that boards are motivated and incentivised to monitor the firm's earnings effectively whenever they have a stake in the firm's profit residual. In addition, their findings show that as the stock ownership increases and the board becomes entrenched, the agency costs goes up. They also test for the moderating effect of firms' growth opportunities on the relationship of director stock ownership and earnings return. They found that this is particularly true in the low growth firms, and the agency cost of entrenchment is more severe if the firms have corporate governance problems.

In Agency Theory directors tend to deviate from shareholder wealth-maximization by excessive consumption of perquisites (perks) when they do not have an ownership stake in the firm. Accordingly, higher insider stockholding aligns directorial interests with shareholder interests. Along this line, using a simultaneous equations model, Chung and Pruitt (1996) examine 404 publicly held US companies in 1987 and found that CEO equity ownership positively influences Tobin's Q. In addition, Core and Larcker (2002) analyzed 195 US firms that had adopted target ownership plans for top executives from 1991 to 1995. Prior to the plan adoption, the firms show low stock returns and have low levels of managerial stock ownership. They found that managerial equity ownership and the firm performance (measured as excess accounting returns and stock returns) were higher after the plans were adopted. They consider that the increase in the managerial ownership results in improvement of the firm performance. Mehran (1995) suggests that firm performance is positively related to the percentage of equity held by managers. However, investigation of 383 Forbes-standing US firms in 1987 by Agrawal and Knoeber (1996) found no effect of insider directors shareholding on Tobin's Q. Loderer and Martin (1997) find a weak positive relationship between executive ownership and acquisition performance (abnormal return). Their findings indicate that performance appears to affect how many stock executives want to hold in their firm. They document that the higher Q induces the executives to reduce their holdings while more profitable acquisitions encourage larger stockholdings by the executives. Yeo et al (2002) examine how ownership structure affects the earnings informativeness for Singapore listed companies. They use two ownership variables in the study; managerial ownership and external unrelated block holdings. Their findings suggest a non-linear relation between managerial ownership earnings informativeness. On the other hand, earnings

informativeness associates positively with external unrelated block holding which is consistent with monitoring function of the block holders.

McWilliams (1990) attempts to link managerial ownership with anti-takeover amendments, his findings indicate that as managerial ownership increases stock price reactions to amendment proposals becomes negative. In New Zealand, results from a study of 128 firms listed on the New Zealand Stock Exchange by Bradbury and Mak (2000) provide evidence of non-linear association between the level of managerial ownership and the choice of a less restrictive takeover amendment. Cosh, Guest and Hughes (2006) investigate the relationship between takeover performance and board share-ownership in the acquiring company for a sample of 363 UK takeovers completed in the period of 1985-1996.They separate board share-ownership into; CEO shareholdings, executive shareholdings and non-executive shareholdings. Griffith (1999) tests the impact of ownership held by CEO of the common stock of the firm on firm value. His hypothesis was that firm value is clearly affected by the share owned by the CEO. He found out that there is an increase in the firm value (measured by Tobin's Q) when CEO ownership rises from 0 to 15% of the firm), but a decline is noticed when his ownership rises to 50% and increases again afterwards.

In short, quite different and even contradictory results have emerged from the numerous investigations and studies in developed countries. The ownership concentration–firm performance relationship warrants further attention. The following Table 2.5 summarises the main empirical findings discussed herein related to the ownership structure–firm performance relationship.

Table 3.5 A number of prior Studies of Relationships between Ownership Concentration (by insider or outside investors) and Firm Performance

Author	Place and period	Ownership variables	Performance measures	Methods used	Main Findings
Leech and Leahy (1991)	UK- 1983-1985	Insiders ownership and external block holdings	Market value / Share capital; ROS; ROE	Multivariate regression	Negative relationship
Curcio (1994)	UK- 1972-1986	Insider ownership	Tobin's Q Total factor productivity	OLS	Non-linear relationship
Nickell et al. (1997)	UK- 1985-1994	External block holdings	Productivity growth rate	Regression technique	Positive relationship
Short and Keasey (1999)	UK- 1988-1992	Insider ownership	RSE and VAL	OLS	Non-linear relationship
Faccio and Lasfer (1999)	UK- 1996-1997	Insider ownership	Accounting rate, Tobin's Q, and market to book	Multivariate analysis	Non-linear relationship
Davies et al. (2005)	UK- 1996-1997	Insider ownership	Tobin's Q	2SLS	Non-linear relationship
Morck et al. (1988)	US- 1980	Insider ownership	Tobin's Q and accounting profit rate	Piecewise regression	Non-linear relationship
Cho (1998)	US- 1991	Insider ownership	Tobin's Q	OLS-2SLS	No relationship
Holderness et al.(1999)	US- 1995	Insider ownership	Tobin's Q	Piecewise linear regression	Non-linear relationship
Wruck (1989	US- 1979-1985	Insiders and external block Holdings	Cumulative abnormal return (CAR)	Piecewise linear regression	Non-linear relationship
Hermalin and Weisbach (1991)	US- 1971, 1974, 1977, 1980, and 1983	Insider ownership	Tobin's Q	Piecewise linear regression	Non-linear relationship
Demsetz and Lehn (1985)	US- 511 companies, 1976-1980	External block holdings	Post-Tax accounting Profit/Book value of equity	2SLS	No relationship
D. Denis and Denis (1994)	US- 1985	Insiders and external block Holdings	ROE, ROA, Operating income to assets, Tobin's Q, and market	Standard t-test	No relationship

			to book value.		
Holderness and Sheehan (1988)	US- 1979-1980	External block holdings	Q and ROE	Standard t-test	No relationship
Bhagat and Bolton (2008)	US- 1990-2002; 1990-2003; 1990-2004	Insider ownership	Risk-adjusted Share-holder Return and operating Rate of Return.	Simultaneous	Positive relationship
McConnell and Servaes (1990)	US- 1976 and 1986	Insiders and external block Holdings	Tobin's Q	OLS	Non-linear relationship and positive for blockholdings
Agrawal and Knoeber (1996)	US- 1987	Insider ownership	Tobin's	OLS and 2SLS	No relationship
Mehran (1995)	US- 1979-1980	External block holdings	Tobin's Q and ROA	OLS	No relationship
Demsetz and Villalonga (2001)	US- 1980 and 1981	Insider ownership and external blockholders	Tobin's Q Accounting profit rate	OLS and 2SLS	No relationship
McConnell and Servaes (1995)	US- 1976, 1986, and 1988	Insiders and external block Holdings	Tobin's Q	OLS	Non-linear relationship with insider and positive impact with external
Loderer and Martin (1997)	US- 1977-1988	External blockholders	Tobin's Q	OLS	No relationship
Anderson and Reeb (2003)	US- 1992-1999	Insider ownership	Tobin's Q and ROA	Regression	Positive relationship
Agrawal and Mandelker (1987)	US- 356 US listed firms, 1979-85	Insiders and external blockholders	Cumulative abnormal return	Regression	Positive relationship for large shareholders and no relationship with insiders
Himmelberg et al. (1999)	US- 400 companies from 1982-1992 Fixed effects-	Insider ownership	Tobin's Q and ROA	2SLS	Non-linear relationship

3.6.6 Financial Policies

Another factor which could impact the firm performance is financial policies (Debt and dividend). Also debt and dividends have been used in other studies as control variables for performance impacts not linked to corporate governance mechanisms, for instance studies as Morck et al. (1988) and Demstez and Lehn (1985). However, other studies used these two variables as corporate governance mechanisms (Bohren and Odegaard (2001), Lang and Litzenberger (1989), Aljifri and Moustafa (2007), and Silveira and Barros (2007). In contrast Agrawal and Knoeber (1996) used debt as a corporate governance mechanism.

Management discretion is controlled and limited if firms utilise debts and pay dividends (Jensen, 1986). The debt factor in a firm can make certain that the cash flow of such a firm is utilised to pay the liabilities due to creditors who might force liquidation in case obligations are not met. In the same way, a high dividend pay-outs policy can lead to the satisfaction that cash flow is distributed to shareholders and can ensure that less money is left for managers' discretion to finance risky projects that do not guarantee profit. In addition, Easterbrook (1984) comments that high dividends enforce the firms to go to the market for new finances where the management team is required to attract new investment and therefore must inform the public about future plans. In this regard, agency theory proposes that these two variables have an impact on improving the firm performance. Moreover, Stulz (1988) suggests that debt reduces agency cost (monitoring and bonding), while a higher threat of bankruptcy is imposed upon management if they fail to commit for payments. Subsequently, the managers are likely to be proactive and more efficient upon fear of a potential loss of work and reputation, thus they perform in favour to increase firm performance.

Debt is an effective mechanism to be employed to reduce agency problems (Jensen and Meckling, 1976). The latter claimed that with debt there is less need for external equity to be issued and debt reduces the divergence between shareholders and managers, thus the interest between managers and shareholders is increasingly aligned. However, debt could have positive or negative effects on firm performance, the negative impacts more often taking place in firms with various profitable growth opportunities (McConnell and Servaes, 1995). Hence, the best debt policy is based on the level of investment opportunities.

Meanwhile, several studies (Morck et al., 1988; Agrawal and Knoeber, 1996; Holderness et al., 1999; Demsetz and Villalonga, 2001 and Welch, 2003) have found results that are consistently supportive for the negative relationship side. Furthermore, the impact of debt on performance is expected to differ amongst countries due to some differences in the financial development and legal procedures in these countries.

The role of dividends payment in this context is considered essential as equity is reduced due to dividends payments and could require replacement debt finance. The crucial role of dividends for monitoring is identified by Easterbrook (1984) and Jensen (1986). Easterbrook (1984) proposed that agency problems could be controlled by dividends by the monitoring imposed by primary capital markets of the activities and performance of firms. Providing higher dividend payouts, firms need to raise debt or have to choose selling common stock on the capital market where banks, securities exchanges and suppliers are scrutinising the management of these firms. Dividend payments could help dissipate cash and avoid wasting it in a negative value project which restricts to some extent the investment opportunities by managers (Jensen, 1986).

Lang and Litzenberger (1989) tested the free cash flow perspective upon 429 US firms for a period of 1979 to 1984. They relied on the framework used by Berle and Means (1932) and Jensen (1986), and based on their findings they concluded that debt and dividends are substitute mechanisms to reduce agency costs for firms with low growth opportunities. They set up the sample into two groups of dividend changes: the first group of firms with Q values less than 1 and the other with Q values greater than 1. The findings show that Low-Q firms enjoy larger abnormal return comparing to high-Q firms. They reported that there is a positive association between share prices with increasing dividends in firms having low investment opportunities (measured by Q).

Thomsen (2004) examined the relationship among blockholder ownership, dividends and firm performance for firms with net assets exceeding US$ 2 billion in 1998. The study was carried out on 12 European countries and the US. It identifies a negative impact of blockholder ownership on firm performance as measured by Tobin's Q attributable to the interaction effects with dividend policy. The performance of European firms was not materially negatively affected with low investment rates, high payout ratios and smaller equity bases.

Bohren and Odegaard (2001) studied non-financial firms listed in the Oslo Stock Exchange in Norway for the period between 1989 and 1997. They found that more debt and higher dividends decrease firm performance. In contrast, Beiner et al. (2003) studied Swiss firms and found a positive relationship between firm performance and debt after controlling for endogeneity. Based on signalling theory, there is an argument that insiders have more access for the company information and know more than the outsiders about the future prospects of the firm and thus they use dividends in a way to alert the market about future earnings.

The relationship among investment, financing, and dividend decisions is examined by Pindado and Torre (2006). They selected 135 Spanish-listed firms from 1990 to 1999. They used Generalised Method of Moments (GMM) regression and found that when debt increased insiders reduced their ownership. Also, Toledo (2010) utilised debt as an essential mechanism to mitigate the agency problems and increase firm performance. He found that performance of Spanish firms decreased due to more debt and he realised that mutual causality relationship is existent between debt and firm performance.

La Porta et al. (2000) examined dividend policies of listed companies in 33 countries. Two alternative models of dividends were used; the first dividend model was a result of effective legal protection and the second model was a reserve for effective legal protection. Firms paid higher dividends in countries where minority shareholders have better protection while on the other hand firms with rapid growth paid lower dividends due to shareholders' rights being protected and can claim eventually if the firms expect some potential investment opportunities. However, in contrast shareholders prefer receiving dividends irrespective of potential investment opportunities within a poor legal protection context. Moreover, an existent opposite relationship between shareholders' rights and dividends payments lead to, in a weak shareholders' rights context, firms paying higher dividends. La Porta et al. (2007, p. 27) summed it up as "*data suggest that the agency approach is highly relevant to an understanding of corporate dividend policies around the world*". Brick, Palia, and Wang (2006) examined the relationship between corporate governance mechanisms and firm performance. using Tobin's Q, ROA, and Alpha (the abnormal returns) as performance measures, finding that these three measures have a negative relationship between debt and performance and concluding that profitable firms exploit more retained earnings and utilise less external finance.

There are some studies which examine the relationship between corporate governance mechanisms and firm performance in developing countries, where dividends payments and debt were included, (Jayed and Iqbal, 2007; Garay and Gonzales, 2008; Tam and Tan, 2007; Haniffa and Hudaib, 2006; Arman and Ahmad, 2010; Sarkar and Sarker, 2008). Their findings suggest that there is no positive relationship between debt and firm performance and that it cannot be used to reduce agency problems. These findings stem from poor investor protection in developing countries (La Porta et al., 2000). Meanwhile, Alwi (2009) found that debt cannot reduce the conflict among shareholders, as he divided the shareholders into two groups - high ownership and low ownership concentration- but dividend policy can.

To sum it up, financial polices (dividend payments and debt) have a positive impact on firm performance which increase firm value and reduce agency problems. However, in developing countries due to legal systems and ownership structure the relationship between managers and shareholders is likely to severely suffer and therefore agency problems increase. Moreover, Gompers et al. (2003) argue that good shareholders' rights protection imposes restrictions upon the managers in using cash and forces them to utilise less debt and works in the shareholders' interest. Table 2.6 summarises the main empirical studies discussed herein related to the financial policies–firm performance.

Table 3.6 A number of prior empirical studies examining the relationship between financial policies and firm performance

Author(s)	Region	Financial policies variables	Performance measures	Period & Methodology	Results
Dahya and McConnell (2005a)	UK- 1124 listed firms 1989-1996	Debt	ROA and stock prices	Event study	Positive relationship
Brick et al. (2006)	US	Debt	Tobin's Q, ROA, Alpha	1,063 firms from 1992 to 2004	Negative
Demsetz and Villalonga (2001)	US- 1980 and 1981	Debt	Tobin's Q, profit rate	OLS and 2SLS	Negative
Holderness et al. (1999)	US- 1995	Debt	Tobin's Q	Piecewise linear Regression	Negative
Morck et al. (1988)	US- 1980	Debt	Tobin's Q, accounting profit rate	Piecewise regression	Negative
Lang and Litzenberger (1989)	US- 429 US dividend announcements for the period 1979 to 1984.	Debt	Tobin's Q	429 US dividend announcements for the period 1979 to 1984.	They find that low-*q* firms have larger abnormal returns than high-*q* firms(positive)
Agrawal and Knoeber (1996)	US- Forbes 800 firms 1988-	Debt	Tobin's Q	2SLS	Negative
McConnell and Servaes (1995)	US- 1976, 1986, and 1988	Debt	Tobin's Q	OLS	Negative

Welch (2003)	Australia- 114 listed firms 1999-2000	Debt	Tobin‘s Q	114 listed firms 1999-2000	Negative relationship
Thomsen (2004)	12 countries and US- Firms more than US$2 billion in 1998	Dividend	Tobin‘s Q	Firms more than US$2 billion in 1998	Negative relationship
La Porta et al. (2000)	27 Countries- 13698 firms 1996	Dividend	Sale growth	OLS	Better protection higher dividend and High growth
Beiner et al. (2003)	Swiss- 275 listed firms in 2002	Debt	Tobin‘s Q	OLS and 2SLS	Positive
Bohrenand Odegaard (2001)	Norway- All listed firms in 1989- 1997-	Debt and dividend	Tobin‘s Q	OLS and 3SLS	Negative relationship
Toledo (2010)	Spain- 106 listed companies 2007	Debt	Tobin’s Q	Simultaneous equations	Negative

3.7 Performance measures

Understanding different aspects of performance measurement and choosing relevant measures are important for pursuing research objectives. Performance measurements offer insights into appropriate measures for answering research questions. However, it is not always agreed as to what performance measures should be employed and used (Dalton et al. 1980; Haniffa & Hudaib, 2006). There are various measures which have been used regularly in past researches as a measure for firm performance (e.g., value ratio, labour productivity, net present value, market-to-book value, and earnings per share). The measures of performance for the purpose of this thesis could be divided into two majors groups: market measures and accounting measures, specifically Tobin's Q and ROA.

Regarding Return on Assets (ROA), several studies have used this measure such as Lin, Huang, and Young (2008), King and Santor (2007), Haniffa and Hudaib (2006), Al- Khouri (2006), Gedajlovic and Shapiro (1998), Mehran (1995), and Denis and Denis (1994). Accordingly ROA is measured as earnings after interest expenses and taxes divided by total assets. With respect to Tobin's Q which was first introduced by Tobin in 1967, it has been used by many researchers such as, Haniffa and Hudaib (2006), Holderness, Kroszner, and Sheejan (1999), Cho (1998) and Morck, Shleifer, and Vishny (1988). Tobin's Q is measured as the ratio of market value of assets (equity and debt) by the replacement value of assets. However, other studies used Tobin's Q and were calculated in different ways. For example, in Tobin's calculation, Yermack (1996) calculated Q by dividing the market value by the estimated replacement costs of assets. Chung and Pruitt (1994) compared their model, which defined Tobin's Q as the market value of equity plus the value of preferred stock plus total debt divided by the book value of total assets, with the Lindenberg and Ross (L-R) (1981) model finding that the replacement value for the firm's plant, equipment, and inventories is equal to their book value. Chung and Pruitt (1994, p. 72) stated: "*The very high degree of observed consistency between L-R and the approximate Q formulas over the 1978 to 1987 time period strongly suggests that financial analysts wishing to employ approximate Q values in day to day business decisions may do so with considerable confidence".*

While accounting data is very important in corporate governance, accounting measures do not reflect all agency costs (Wiwattanatang, 2001), directing researchers to go into using

market indicators of performance (e.g. stock prices). In both developed and developing countries, Tobin's Q—the ratio of market value of assets (equity and debt) to the replacement value of assets—is broadly used as a proxy of firm performance measure. Firm's accounting and reporting systems provide financial accounting data, and this quantitative data regards the financial position and performance of the firm over a specified and particular period. The management of the firm provides financial statements which are subject to audit to prove that they are fairly presented according to the general accounting principles and standards. Prowse (1992) discussed that as stock market returns are suspected to modify for any conflicts between managers and shareholders, accounting measures are favourable for examining the relationship between firm performance and corporate governance. The role of accounting data in the operation of corporate governance mechanisms has been examined in previous studies in corporate governance (e.g., Haniffa & Hudaib, 2006; Morck et al., 1988; Demsetz & Lehn, 1985; and Holderness & Sheehan, 1988). However, accounting measures need to be carefully considered as the study results might be biased by using accounting measures. Accounting measures are normally established on historical data, which could cause lack of comparability and lead to distortions amongst firms. Therefore, the accounting valuation may be not up to date. Tobin's Q displays the financial strength of the firm and it is used in the financial market as a proxy for a firm performance. Tobin's Q has been used in several studies (e.g. Durney & Kim, 2005; Beiner, et al., 2004; Gompers, Ishii, and Metrick, 2003; and Morck et al., 1988). However, there are some disadvantages when using market indicators as performance measures.

Pham, Suchard, and Zein (2007, p. 4) reported that "*Tobin's Q suffers from a number of problems. First, the measurement of Q is subject to accounting treatment of balance sheet items. Second, Q also reflects a firm's growth opportunities. A change in a firm's Q over time may simply reflect changes to the valuation of future growth opportunities which arise in part from factors exogenous to managerial decisions, such as economic and industry conditions".* Khanna & Palepu (1999) argue that using market measures to assess performance assuming that the firm's true value is reflected by the stock prices, however it is not always the case as such measures are not valid all the time as capital markets may be illiquid and lack timely disclosure. A similar problem applies to accounting data because the quality of the data is based heavily on the quality of the accounting standards of the country. Moreover, Tobin's Q is also a proxy for risk and growth opportunities and is not a clear measure of performance (Gupta, 2005).

In conclusion, Tobin's Q involves looking ahead (what will management do?) while accounting measures necessarily look backwards (what has management done?). However, with respect to accounting measures, the accounting standards set by the accounting profession and the government constrain the accountant, while with respect to Tobin's Q, it is strongly affected generally by the level of the market and investor confidence (Omran et al., 2008). As such, a trade-off occurs between disadvantages and advantages of market-based measures versus accounting measures. Eventually, in selecting measures of performance, their suitability in association to various environmental issues and specified research objectives should be considered carefully. Taking into account that the literature has not favoured one measure of performance, that there is no obvious consensus existing about the selection of this dependent variable and because each has advantages and disadvantages, for the sake of the robustness of the findings it is better to use alternate measures (Haniffa and Hudaib, 2006) Consistent with this view, Welch (2003, p. 291) suggested that: "*While Tobin's Q is the most common measure that has been used to date in modelling the relationship between ownership structure and corporate performance, it is important to test the robustness of reported results to the use of an alternate performance measure".*

3.8 Endogeneity and causality

The problems of endogeneity and causality are very important in corporate governance research because both of these problems can impact our results. Thus, in order to avoid any misleading or inconsistent results, these problems will be investigated. Endogeneity refers to the presence of unobserved variables that impact both firm performance and corporate governance mechanisms. It indicates that a relationship exists between the error terms of independent variables, which may make the OLS regression inapplicable for estimating the parameters of each equation. Consequently, OLS assumptions will be violated when estimating the equations. Gujarati (1999, pp. 492-493) stated that:

"In simultaneous equations regression models what is a dependent (endogenous) variable in one equation appears as explanatory variables in another equation. Thus, there is a feedback relationship between variables. This feedback creates the simultaneity problems rendering OLS inapplicable to estimate the parameters of equations individually. This is because the endogenous variable that appears as an explanatory variable in another equation may be correlated with the stochastic error term of that equation. This violates one of the critical

assumptions of OLS that the explanatory variable is either fixed or non-random or if random, it is uncorrelated with error term".

Several previous studies (e.g., Al-Khouri, 2006; McConnell & Servaes 1990; Morck et al. 1988) examined the relationship between firm performance and corporate governance mechanisms, assuming that such mechanisms impact firm performance without an endogeneity relationship—although others have argued that some governance mechanisms are endogenous to the firm performance. Results have indicated that not only corporate governance impacts firm performance, but also firms with high performance are more likely to have better corporate governance. Silveira and Barros (2007, p. 9) suggested that ―
"The main endogeneity problem in corporate governance research refers to the possible presence of omitted variables and potential simultaneous determination of the variables of interest".

Ignoring this problem in regression may make the coefficient inefficient and unreliable, thereby affecting the results. Causality refers to the direction of impact. Several studies have argued that—instead of corporate governance mechanisms impacting firm performance—the causality may be the other way around, meaning that high performance impacts change in corporate governance mechanisms. Agrawal and Knoeber (1996, p. 394) argued that ―
"The use of one mechanism may depend upon the use of others. As a consequence, empirical estimates of the effect that single control mechanisms have on firm performance will likely be misleading".

Firms with higher performance could be more likely to adopt better corporate governance mechanisms (i.e., either good corporate governance leads to higher performance or higher performance leads to good corporate governance). Empirically, Hermalin and Weisbach (1988) found that CEO turnover is related to firm performance. They argued that outsiders were more likely to join boards after firm's experienced poor performance. In addition, Kole (1994) developed one of the first academic studies to investigate the causality between firm performance and ownership. She found that the relationship between firm performance and insider ownership runs from firm performance to insider ownership. She suggested that increased ownership is an incentive for high firm performance. Recently, Bhagat and Bolton (2008, p. 257) stated that:

"The relation between corporate governance and performance might be endogenous, raising doubts about the causality explanation. There is a significant body of theoretical and empirical literature in accounting and finance that considers the relations among corporate governance, management turnover, corporate performance, corporate capital structure, and corporate ownership structure. Hence, from an econometric viewpoint, to study the relationship between any two of these variables one would need to formulate a system of simultaneous equations that specifies the relationships among these variables".

Accepting these arguments, OLS analyses will produce misleading conclusions and not provide consistent coefficients for the model. In following these arguments in the literature, the current study investigates the relationship between firm performance and corporate governance mechanisms by considering the jointly determined variables. In order to address endogeneity and causality problems, three approaches were considered in the literature review—namely, fixed effects regression (Himmelberg et al., 1999), instrumental variables model with 2SLS (Abdullah, 2007), and the system of simultaneous equations (Agrawal & Knoeber 1996; Bohren & Odegaard 2001; Cho, 1998; Demsetz & Lehn, 1985; Demsetz & Villalonga 2001; Earle, 1998; Lins, 2003). Table 2.7 presents the empirical studies that considered the endogeneity and causality issues from developed and developing countries.

Table 3.7 Empirical studies considered Endogeneity and causality issues

Author(s)	Country	Method for testing endogeneity and causality	Instruments test	Variables
S. Hermalin and Weisbach (1991)	US	Piecewise regression	Hausman test	Ownership and board composition
Agrawal and Knoeber (1996)	US	2SLS	Relationship among governance variables	Several governance mechanisms
Cho (1998)	US	2SLS and 3SLS	None	Ownership structure
Himmelberg et al. (1999)	US	Fixed effects and 2SLS with instrumental variables	Found difficulty to find good instruments	Ownership
Demsetz and Villalonga (2001)	US	2SLS	None	Ownership structure
Bhagat and Black (2002)	US	3SLS	None	Board independence
Brick et al. (2006)	US	2SLS and fixed effect	Hausman and Sargan test	Several governance variables
Abdullah (2007)	UK	2SLS	Hausman test	Board independence and board size
Silveira and Barros (2007)	Brasil	2SLS	None	Several governance variables
Beiner et al. (2004)	Swiss	3SLS	Hausman and Sargan test	Several governance variables
Bohren and Odegaard (2004)	Norway	2SLS	No proper basis for choosing instruments	Several governance mechanisms
Black et al. (2006a)	Korea	2SLS and 3SLS	None	Board independence

3.9 Corporate governance Index studies

Measuring improvements in shareholder value and corporate performance attributable to good corporate governance mechanisms is complicated because of the absence of comparable worldwide data. Different studies have been utilising different indices which are constructed in dissimilar ways in order to compare these mechanisms at a firm-level and across country-level. Although it is considered a recent phenomenon, these studies have gathered momentum on the impact of these mechanisms on corporate performance.

Currently rating agencies and specialised financial institutions have maintained an interest in the corporate governance data to be utilised in ranking the large public firms. Klapper and Love (2004) state that firms with good governance mechanisms attract external finance, have better performance and an advantage of better market valuation. Several recent studies have utilised a broader measure of corporate governance based on a composite corporate governance rating. Gompers et al (2003) for the U.S., Drobetz et al (2003) for Germany, Klapper and Love (2004) for 14 emerging markets, Bauer et al (2004) for European Monetary Union (EMU) and the UK, Durnev and Kim (2002) for 27 countries, Black, (2001) for Russian firms, Bauer and Guenster (2003) for firms in Holland, Beiner (2004) for Swiss firms, Black et al (2006a) for Korean firms, Brown and Caylor (2006) for US listed firms, Daines et al (2008) for US listed, Garay and Gonzalez (2008) for listed Venezuelan Companies, Bhagat and Bolton (2008) for US firms, Larker et (2007) for US listed companies firms, Khanchel El Mehdi (2007) for listed Tunisian Companies, Selvagi and Upton (2008) for Association of British Insures in Britain, Renders et al (2010) for FTS Eurofirst 300, and McGee (2008) for Asia.

Gompers et al. (2003) construct a governance index to proxy for the level of shareholders' rights for about 1500 large firms during the 1990s. They state that the governance means utilised in the US to solve the agency problems are the legal protection of minority shareholders, an active market for corporate control and the board of directors as monitors for the management team. They suggest that the strength of those provisions is initially referenced by: security regulations, charter provisions, corporate law and bylaws and other rules. The governance index used is mainly focused on the governance provisions relating to anti-takeovers. Three hypotheses are tested in this study: firstly, weak shareholder rights

causes additional agency cost; secondly, governance provisions cause no higher agency costs but rather were put in place by managers in the 1980s who expected a poor performance for their firms in the 1990s; and thirdly, governance provisions do not cause poor performance but rather are correlated with other characteristics that were associated with abnormal returns in 1990s

Gompers et al (2003) used the data and the governance provisions for four years from the Investor Responsibility Research Centre (IRRC). They added a point for each provision that restricts shareholder rights which could be interpreted as increases in managerial discretion. They formed two portfolios for shareholders' rights, divided into two categories: Democracy portfolio for firms with the strongest shareholder rights and Dictatorship Portfolios with the weakest shareholder rights. The study shows that the governance index has a positive correlation with Tobin's Q, book-to-market-ratio, dividend yield, S&P 500 inclusion, share price, firm size, percentage of institutional ownership and monthly trading volume. However, it is negatively correlated to past five-year stock returns. Also, it shows that corporate governance and stock returns are strongly correlated during the 1990s. It also indicates that the portfolio of strongest shareholder rights outperform the portfolio with the weakest shareholder rights and earn an abnormal return of 8.5 percent annually, based on investment strategy that purchased the democracy portfolio and sold the dictatorship portfolio. In addition, the study shows that firms within the democracy portfolio had higher profits, higher value using Tobin's Q, higher sales growth, and more opportunity to make acquisitions, as well as lower capital expenditure. Also, they found that firms with weak shareholders' rights are less profitable, have less sales growth than their peers, and have higher capital expenditures and more acquisitions than firms with stronger shareholders' rights. Different control variables are used in their study, log firm value: log book value of asset, dummy variable for Delaware and non- Delaware firms and dummy variables for S & P 500 inclusion. They explained the above results in two ways, agency cost is caused by poor governance, and otherwise the governance is related to other factors such as risk which affects the stock returns. However, their results for the impact of governance on performance do not achieve positive support and they conclude that some variables are omitted and could drive such results. Furthermore, the governance index used is mainly constructed on shareholder rights during the 1990s and the publication of corporate governance codes and shareholder activism has improved since.

Several studies recently have extended the index to include different new mechanisms such as auditing, board of director rights and disclosure which leads to significant governance impact on the value of the firm. Klapper and Love (2004) develop an index for 14 emerging markets; they used a combination of 57 qualitative binary questions provided by Credit Lyonnais Securities Asia (CSLA). The questions cover different categories of governance, independence, transparency, discipline, responsibility, accountability, social awareness and fairness. They add one point to the governance score for each answer based on yes, although the analysts were instructed strictly to answer with no if there was a controversy or they were doubtful regarding the minority shareholder rights. They used the governance rating provided by Credit Lyonnais Securities Asia to study the relationship between governance and performance of 374 firms in 14 countries - Brazil, Chile, Hong Kong, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Singapore, South Africa, Taiwan, Thailand, Turkey, utilising multivariate regression analysis. They measured the market valuation of assets using Tobin's Q and the operating performance by Return on assets (ROA). The control variables that are used to proxy for growth opportunity are: average growth in sales, size, and the rate of investment. They found that good governance mechanisms are more vital in countries with inefficient enforcement and weak shareholder rights. Also, they concluded that superior corporate governance is highly correlated with market valuation (as measured by Tobin's Q and ROA) and better operating performance.

The G- Index created by Gompers et al (2003) was used as a governance index for a study led by Core et al. (2006) to examine the association between governance and operating performance (as measured by return on asset (ROA)). The initial sample consists of all firms that have a G-index, and is the sample from GIM (Gompers, Ishii, and Metrick's (2003)). The study is focused to test the following hypotheses: (1) shareholder rights are not linked with future operating performance, (2) shareholders' rights are not related to analyst forecast errors, (3) shareholder rights are not associated with excess returns just around earnings announcement, and (4) shareholder rights are not connected with takeover probability. They found that firms which have weak shareholders' rights have poorer operating performance. Exploiting earnings forecast of the analysts and returns around earning announcement as proxies for the expectations of the investors, they found investors and analysts are not surprised by the different outcome in the operating performance. Their findings regarding the last hypothesis indicate that the takeover rate is similar for the firms with strong governance

and firms with weak governance. Regarding the hypothesis that considers shareholders' rights cause future abnormal returns, they show that their indication is not consistent.

Bauer et al. (2004) examine the effect of the corporate governance index on stock returns, firm value and profitability. They use Deminor corporate governance ratings for firms included in the Eurotop 300 over two years. Deminor Ratings (hereafter, "Deminor") bases its score on approximately 300 criteria, which can be subdivided into four categories: rights and duties of shareholders, range of takeover defences, disclosure on corporate governance and board structure and functioning. They apply the approach of Gompers et al (2003) in building two portfolios: well-governed and poorly governed firms. Their findings indicate that the governance provisions have a positive relationship with stock returns and firm value, and have a negative relationship with operating performance. However, the positive relationship is weak when the differences in the countries are adjusted.

Drobetz et al. (2004b) constructed a governance index based on 30 governance practices distributed into five categories: shareholders' rights, transparency, corporate governance commitment, auditing and management and supervisory board matters. The objective in this study was to provide evidence for the hypothesized relationship between governance and expected rate of returns within a single jurisdiction. Thus, they conducted their study in a broad cross-section of German listed public firms to test the relationship between a large set of governance proxies and expected returns. They used three different measures as a proxy for return on equity, historical stock return (RI) and fundamental valuation measures, such as Dividend Yield (DY) and Price-earnings ratios (PE). The sample period applied in this study covers the 50 months starting from, January 1, 1998 to March 1, 2002. Based on the proxies for firm-specific corporate governance, their results show that there are major differences in firm-specific governance across listed German firms. They hypothesized the following model: if existing ex ante governance provisions are not effective or not appropriate, there is a higher incentive for large shareholders and institutional shareholders to discipline and monitor more actively the incumbent management for not being successful. Because increasing monitoring activities increase the cost, shareholders require higher expected rate of return on equity as an adequate compensation for the occurring risk. The rationale is that the required return on equity decreases when firm-specific corporate governance mechanism improves and this implies higher valuation for the firm as the monitoring activities for investors are diminished.

They found a strong relationship between their corporate governance rating and firm value which aligned with the stated hypothesis. However, they report a negative relationship between corporate governance rating and dividend yields in a cross-section of listed German firms. They explain this observation with the predictions from agency theory. Also, their findings indicates that there is a significant positive relationship between average historical returns and the corporate governance rating that suggests higher corporate governance firms have performed better in the past. They explain this suggestion rationally with lower unexpected agency costs or the exclusion of failure in particular governance mechanisms in high corporate governance rating firms. Finally, an investment strategy which bought high corporate governance rating firms and shorted low corporate governance firms will have gained abnormal returns of around 12 % on an annual basis within the sample period of the study.

Durnev and Kim (2002) used only the first six categories used by Klapper and Love (2004) to build a composite index for companies across 27 countries. They examined why firms practice high-quality governance when the law does not require it; firm attributes related to the quality of governance; how the attributes interact with the legal environment; and the relation between firm valuation and corporate governance. Using firm-level governance and transparency data on 859 firms in 27 countries, they find that firms with greater growth opportunities, greater needs for external financing, and more concentrated cash flow rights practice higher-quality governance and disclose more. Moreover, firms that score higher in governance and transparency rankings are valued higher in the stock market. Equally importantly, all these relations are stronger in countries that are less investor friendly, demonstrating that firms do adapt to poor legal environments to establish efficient governance practices.

Black (2001) examines the relationship between corporate governance behaviour and market value for a sample of 21 Russian firms. Black used September 1999 data to test the proposition which is based on firm's corporate governance behaviour having an impact on their market value. He used corporate governance rankings for these firms, developed by a Russian investment bank, Brunswick Warburg. He used two data sets provided independently by two prominent Russian investment banks, Brunswick Warburg and Troika Dialog, to test whether inter-firm variation in corporate governance behaviour has a major impact on firms' market value in Russia. The first data set is September 1999 corporate governance rankings;

Brunswick Warburg rated Russian firms on a scale from 0 to 60, where 0 indicates good governance while higher numbers shows poor governance. The second data set consists of value ratios for these firms in September 1999 (matching the date of the corporate governance rankings). The value ratio is computed as the ratio of (i) actual market capitalization, based on trading prices in the Russian stock market, to (ii) potential Western market capitalization, if the firm were operated and valued in an efficient western market. Actual market capitalization is based on trading prices, which are prices paid for minority, non-controlling shares. The private benefits of control in Russia are high, so for most firms, their economic value likely exceeds their market capitalization.

He hypothesized that the correlation between high governance rankings (low governance quality) is negative with the value of the firms. He ran a simple regression of in (value ratio) as dependent variable and governance rankings as independent variable, finding that the correlation between Ln(value ratio) and governance ranking is strong and statistically significant, Pearson r =0.90 (t-8.97). The results are considered tentative because the sample is small and they explained that the strong impact of corporate governance behaviour on market value is due to the situation of the country as legal and cultural constraints on corporate behaviour are weak.

Beiner et al (2004) study the relationship between corporate governance and the valuation of listed companies in Switzerland. They used a broad corporate governance index and other added variables linked to board characteristic, ownership structure and leverage to provide a complete description of firm-level corporate governance for a sample of Swiss firms. They sent a broad survey to all listed firms on the Swiss Stock Exchange (SWX) but excluding investment companies to build a firm-specific Corporate Governance index (CGI). They used control mechanisms that are not included in the index, such as outside blockholdings, board size, stock ownership by officers and directors, and the proportion of outside directors on the board. Their results are similar to other studies which supports the widespread hypothesis of a positive relationship between corporate governance and firm value. The most important aspects in their results are based on an increase in the corporate governance index by one point (index ranges are from 1 to 100) causing an increase of the market capitalisation by approximately 8.52%, on average of a firm's book asset value. They reported other significant results on the relationship between Tobin's Q and different control mechanisms; for instance, firm valuation significantly increases with higher shareholdings of directors and

officers. Furthermore, higher shareholdings of officers and directors are linked with a lower proportion of outsiders on the board.

Black, Jang, and Kim (2003), found a positive relation between their corporate governance index and Tobin's Q for a sample of 526 Korean public companies, their index primarily based on responses to an extensive survey among Korean listed companies and consisting of six subindices for shareholder rights, board of directors in general, outside directors, audit committee and internal auditor, disclosure to investors, and ownership parity. To control for a possible endogeneity, they use a three stage least square (3SLS) simultaneous equations approach and show that a 10 point increase (out of 100) in the governance index results in a 19.4% increase in Tobin's Q. Table 2.8 highlights the empirical studies between corporate governance indices and firm performance.

Table 3.8 A number of prior Studies of Relationships between Corporate Governance Index and Firm Performance

Name of the study	Country	Performance measures	Control Variables	Results
Gompers et al, (2003)	US	Tobin's Q	Log book value of assets, log firm value, dummy variable for Dealware and non-Dealware firms, dummy variables for S & P 500 inclusion	Significant relationship between governance and valuation, poor governance causes agency cost
Drobetz et al, (2004)	Germany	Historical stock returns, dividend yields, price-earnings ratios	log of book asset value, the average of sales and asset growth, the log of the years of listing, leverage, and industry dummy variables	Significant relationship
Baeur, et, al, (2004)	EMU and the UK	Net Profit Margin, Tobin's Q, Return on Equity	Return-on-Equity, firm age, book value of asset	Strong relationship
Klapper and Love (2004)	14 Emerging markets	Tobin's Q and ROA	Average growth in sales, size and the rate of investment.	Better valuation
Beiner et al (2004)	Swiss	Tobin's Q	Firm size	Positive relationship between corporate governance and Tobin's Q.
Black et al (2006a)	Korea	Tobin's Q, market to book, and market to sales	Set of control variables Ln (asset s) Ln (years of listing *Chaebol 30* Dummy Debt/Equity	Board independence affect positively market valuation
Rashid, K & Sardari,(2008)	Australia and	Tobin's Q	Market Capitalisation, Price	Positive relationship between

	Malysia		to book value	CG and Value of the Firm
Foerster and Huen (2004)	Canada	Aggregate excess return	Standard deviation of stock returns, market value, market- to-book and year and industry factors	Positive link between CG ranking and return
Black (2001)	Russian	Value ratio (actual/potential market capitalisation)	Industry	CG behaviour have a powerful impact on market value
Selvaggi and Upton (2008)	Britain	Returns on assets, the market-to book value of assets, returns on the company's share and the Sharpe ratio	Size, growth prospects, profit margins, asset composition, leverage and market capitalisation.	Strong links between good governance and strong performance across all these measures.

3.10 Relation between governance mechanism and firm performance

Corporate governance deals with determining mechanisms that shareholders can use to control managers' decisions to protect their investment. Increasing financial problems and deregulation as well as the integration of capital markets around the world can be used to examine theories about how to minimise the conflicts between managers and shareholders, between large shareholders and minority shareholders, and between debt holders and shareholders as well as how countries can design an effective corporate governance system to protect investors and the economy at the same time. In this context, this thesis will examine how the following internal governance mechanisms— board characteristics (size, independency, duality), managerial ownership, executive compensation and financial policies (Debt and Dividend) can help to minimise these problems.

The review of the extensive body of existing governance research has identified mixed results for the relationship between governance mechanisms with the firm value. The following table provides the summary of results from previous studies investigating the link between board size, CEO duality, board independence, managerial ownership, executive compensation and financial policies (debt and dividend) with the firm value.

Table 3.9 Summary of previous findings

Governance variables	Author, date	Result (relation with firm value)
Board size	Yermack (1996)	Negative association
	Eisenberg et al. (1998)	Negative
	Conyon & Peck (1998)	Inversely related
	Dalton et at. (1999)	Small positive, but moderated by firm size.
	Brown and Caylor (2004)	Board sizes between six and fifteen have better returns and net profit margin
	Coles, Daniel and Naveen (2004)	Positive association with Q (diversified, large and high leverage firms)
Board Independence	Fosberg (1989)	Insignificant relationship
	Baysinger, Kosnik, Turk (199 1).	Positive association with R&D investment
	Yermack (1996), Agrawal and Knoeber (1996)	Negative correlation
	Vafeas and Theodorou (1998) Lawrence and Stapledon (1999)	No clear link Positive correlation
	Bhagat and Black (2002),	Inverse correlation
	Brown and Caylor (2004), MacNeil and Li (2006)	Inverse correlation
	Baysinger and Butler (1985)	No significant same-year correlation
	Cotter and Silvester (2003)	No significant association

	Dahya and McConnell (2005)	Positive correlation with the appointment of
	Belden, Fister and Knapp (2005)	Outside CEO Positive link with dividend payment
Managerial ownership	Hermalin and Weisbach (1991), Short and Keasey (1999), Lau (2004), Morck, Shleifer, and Vishny (1988), and McConnell and Servaes (1990)	Non-linear relationship
	Chung and Pruitt (1996)	CEO equity ownership positively influences Tobin's Q
	Himmelberg, Hubbard and Palia (1999)	Could not conclude the effect
	Demsetz and Villalonga (2001)	Find no statistical significant relationship
	Davies, Hillier, and McColgan (2005)	Interdependent with each other
Financial policies Debt	Dahya and McConnell (2005a) Brick et al. (2006)	Positive relationship
Debt	Demsetz and Villalonga (2001)	Negative relationship

Debt	Holderness et al.(1999)	Negative relationship
Debt	Morck et al. (1988)	Negative relationship
Dividend Dividend	Thomsen (2004) La Porta et al. (2000)	Negative relationship Better protection→ higher dividend and High growth
CEO duality	Dahya et al. (2002)	Positive relationship with Cadbury recommendations
	Faccio and Lasfer (1999)	No relationship
	Dahya and McConnell (2005a)	splitting the roles—no relationship
	Weir et al. (2002)	No relationship
Executive compensation	Florackis and Ozkan (2008	Negative relationship
	Conyon (1997)	Positive relationship
	Cyert et al. (2002)	Negative relationship
	Kamg et al. (2006)	Positive relationship

The mixed findings of previous research indicate that further evidence is needed on a number of issues, thus further work is required to support corporate governance research. Differences in findings may arise from law and governance regimes, market conditions and research design and methodology. Work can be extended to a different corporate governance regime (UK vs. US) and a later time period, where market conditions (declining or stable market), and the maturity of governance regime should find more evidence about the relationship of governance and performance. An exploration of methodological issues, including the importance of endogeneity among the selected variables and test of choice and instrumental variables, should improve the interpretability of previous research.

The main objective of this work is to examine the relationship between firm performance and corporate governance in the UK. To achieve this objective, these internal mechanisms were selected in order to test this relationship. Other researchers (e.g., Agrawal & Knoeber, 1996; Denis & McConnel, 2003; Denis, 2001; Hermalin & Weisbach, 1991; Jensen, 1986) have argued that internal control mechanisms include ownership structure, firm compensation, board of directors, and financial policies (dividends and debt), whereas external mechanisms include the market for corporate control, legal system, and the factor and product market. These mechanisms provide protection and checks in a firm's operations, disciplining shareholders and management. This study includes the theoretical framework and empirical studies from developed countries that investigate the relationship between these mechanisms and firm performance. Consistent with these discussions, a number of research questions will be developed for all the corporate governance mechanisms discussed.

3.11 Gaps identified in the literature review

The UK corporate governance system has been improving since the publication of the Cadbury Report in 1992. The Cadbury Report has emphasised a number of corporate governance mechanisms in its code of best practice that should be followed by UK listed firms. Many corporate governance reviews and reports attempting to improve corporate governance system have been published in the UK. For example, the Greenbury Report (1995), the Higgs Review (2003), the Smith Review (2003) and a series of combined codes have been issued since 1998 to 2010, focusing on different aspects of corporate governance.

The Companies Act (2006) in the UK has been amended to reflect changes in the corporate governance system and adopt the changes of the updated combined codes. The Combined Code on Corporate Governance has been revised and updated, listed firms should follow the updated versions of the Code. For example, the Combined Code on Corporate Governance of 1998 requires a third of the board of listed firms to be nonexecutive directors. This changed to more than half of the board in 2003 when the code was updated. Even though the adoption of these measures is optional, UK firms are expected to comply with them, as the London Stock Exchange requires all listed companies to clarify in their annual reports whether they have complied with the code and to provide justification if they have not done so (Vafeas and Theodorou, 1998, Weir *et al.*, 2002, Financial Reporting Council, 2003, Financial Reporting Council, 2008, Financial Services Authority, 2008). Although it has been evident that the level of compliance by companies has increased, the relationship between firm performance and corporate governance has been mixed and inconclusive in previous research. Arguably, all these changes have an impact on both corporate governance mechanisms and, as a result, corporate performance. Thus, corporate governance seems to be continuously developing.

A number of corporate governance measures have been proposed to mitigate the agency problems between owners and managers. Weir, Weir and Laing (2000) and Laing and McKnight (2002) showed that the recommendations of the Cadbury Report produced no significant effect on corporate performance. But there is an argument poisted by scholars that better firm performance is achieved in well-governed firms. A large number of empirical works found no clear link between firm performance and corporate governance and there is little consensus regarding the causal relationship between governance mechanisms and corporate performance. Therefore, it is very interesting to test whether a relationship exists between internal corporate governance mechanisms and performance. Thus, this signifies the need for further research in this area.

Most of the studies have been using one or more governance mechanisms in one model such as independent directors, board size, managerial ownership and others to test it against corporate performance. Therefore, this study has used most of the governance mechanisms in one model to examine empirically its link and impact on performance: board characteristics (board size, independent directors, CEO duality and Audit committee), managerial ownership, executive remuneration and financial policies (Debt and Dividend). The majority of existing empirical studies on corporate governance have modelled corporate performance as a function of corporate governance mechanisms. These empirical studies often face several

serious methodological problems related to endogeneity (Guest, 2009, Wintoki *et ai.*, 2012). Endogeneity and causality might exist between firm performance and corporate governance mechanisms. Therefore, when such problems are found it means the OLS estimates in the main model will be inconsistent and biased. Thus, to deal with such problems in an empirical work, 2SLS regressions and instrument variables methods were employed. Finally, few studies have used the most up-to date and comprehensive data after so many changes occurred since Cadbury Report which distinguishes this study from the existing studies on corporate governance in the UK. Also, few studies on UK corporate governance have used panel data to examine the relationship between corporate governance and corporate performance. This study uses data across six years from 2005 to 2010 for FTSE Non-Financial firms. Furthermore, this study attempts to bridge these gaps by examining a six-year period of time, from 2005 to 2010.

3.12 Summary

The literature chapter has suggested that firms use several governance mechanisms to reduce agency problems, thereby improving firm performance. Large shareholders can be an important potential monitoring device for solving the free-rider problem associated with small shareholders. However, empirical studies have suggested that the relationship between ownership concentration and firm performance is mixed, while the level of activism depends on the type of institution or shareholders. The board of directors was also discussed as a potential mechanism for controlling agency problems. Studies have documented the value of appointing outside (external) directors, separating the CEO and chairman, and having smaller boards. The evidence related to board characteristics on firm performance is mixed, highlighting the need for more research on such relationships. In addition, financial policies (Debts and Dividends) were determined to be internal mechanisms for reducing agency costs, thereby improving firm performance. Agency theory suggests that dividends help manage agency costs by reducing retained free cash flows; otherwise, managers can use them on unprofitable projects, thereby impacting firm performance. In short, previous studies have found that several mechanisms do not work as agency theory predicts, and the relationship between governance mechanisms and firm performance is more complex. Although we can assume that a relationship exists among governance variables, not all of them are related to higher firm performance.

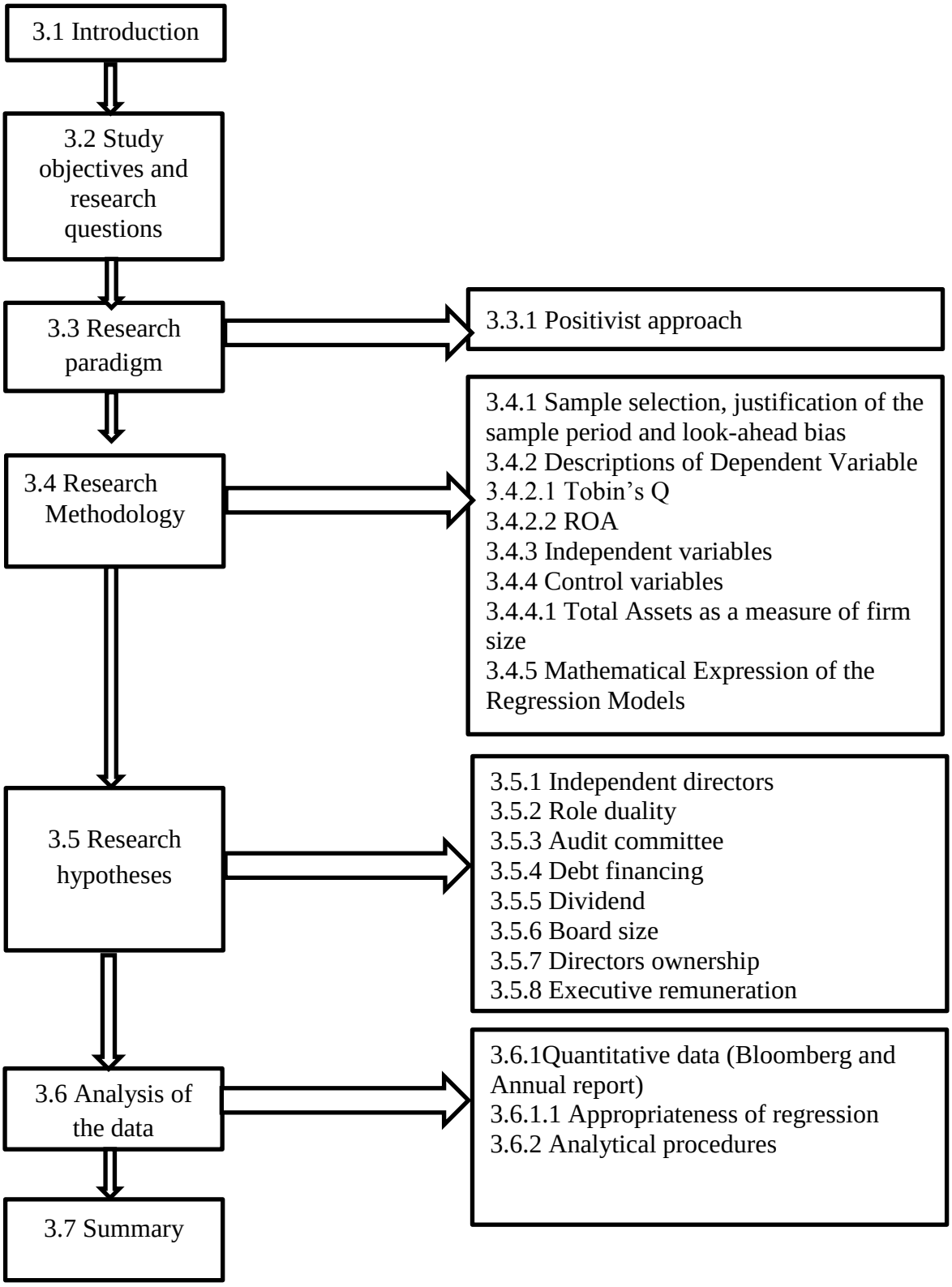


Figure 3 Diagram of chapter three

4 Chapter three: Methodology

4.1 Introduction

There are five sections in this chapter. This chapter presents and discusses the methodology embraced in this thesis along with the data analysis exploited to provide answers for the research questions set and outlined previously. Section one sets out to define the study objectives and research questions. Section two covers the research paradigm which is primarily a positivist approach. Section three considers and evaluates the research methodology advanced to achieve the objectives of the study; it thus focuses on the quantitative methods mainly through the use of regression and secondary data gathered from a number of different sources. Section four introduces the sample selection, dependent and independent variables, control variables and the performance measure variables. Section five includes the proposed hypotheses which are premised on the conceptual framework of corporate governance in the literature chapter. The final section presents the analytical technique, mainly regression analysis, and the Statistical Package for Social Science (SPSS) will be used to run the analysis.

4.2 Study objectives and research questions

As mentioned previously, results of the relationship between corporate governance and corporate performance are mixed and conflicting in previous studies. This study is focused on the UK and its primary objective is to examine the relationship between firm performance (measured by Tobin's Q and ROA) and corporate governance internal mechanisms (Board characteristics, Financial Policies). Figure one on presents the conceptual framework of the study within the Governance Code and Agency Theory impact and effects. The study investigates the following proposed questions to inform the main objective.

9 What impact does managerial ownership have on firm performance?
10 What impact does the presence of independent directors have on firm performance?
11 Does board size have an impact on firm performance?
12 Does the separation of the CEO and chairman roles have any impact on firm performance?
13 What impact does the presence of an Audit Committee have on firm performance?

14 What is the relationship between executive remuneration and firm performance?

15 What is the relationship between debt levels and firm performance?

16 What is the relationship between dividend policy and firm performance?

4.3 Research paradigm

The three main epistemological methodological assumptions are positivism, interpretive, and the realism approach. For the purpose of this study, the first former approaches were used to study the relationship between firm performance and corporate governance mechanisms in the UK.

As demonstrated in Chapter Two, this research follows the quantitative method. This method was utilised since most previous studies in the context of developed countries examined the relationship between firm performance and corporate governance mechanisms using quantitative data. Accordingly, the research adopts the positivist epistemology.

4.3.1 Positivist approach

Broadly speaking, the positivist method is applied when the research study is aimed to generate universal laws of specific social behaviour. In this view, a positivist approach suggests that social phenomena can be researched similar to natural phenomena; in other words, it assumes social reality such as attributes, beliefs, satisfactions, and behaviours can be subjected to traditional scientific study by independent observers that could be investigated empirically. Positivist research frequently uses quantitative and statistical analyses for analysing and interpreting their subject matter. It is widely used and defined as the approach of the natural sciences; people assume that this approach is the most scientific (Neuman, 2006). Neuman (2006, p. 82) argued that" *researchers prefer precise quantitative data and often use experiments, surveys, and statistics. They seek rigorous, exact measures and objective research and they test hypotheses by carefully analysing numbers from the measures".* Additionally, Sarantakos (1988, p. 38) defined this approach from the perspective of the purpose of social research as "*a tool for studying social events and learning about them and their interconnections so that general causal laws can be discovered, explained, and documented. Knowledge of events and social laws allows society to control events and to predict their occurrence".*

Therefore, the positivist approach was adopted in the research as it assumes that large amounts of comparable data can be objectively collected, analysed and reported. As previously mentioned, the aim is to compare the empirical findings derived from the study with the theoretical premises reviewed in the literature herein. Moreover, the positivist approach underpins a theoretical focus for the researcher while still being capable of controlling the research process. According to Laughlin (1995), positivist research is characterised by a high level of theorisation about the subject of research and a high level of formulisation of methods. Nevertheless, Laughlin argues that using the positivist research is explicitly unrealistic. This could be suggested when positivism is applied in the study of human behaviour where the complex and intangible traits of human nature as well as the intangible quality of social phenomena might contradict the regularity and systematic characteristics of the natural world. Laughlin stated "*Parsimonious assumptions are made and the theory's ability to provide meaningful predictions of outcomes is used to assess the theory's utility*". For example, capital markets theory makes unrealistic assumptions about the completeness of markets, full information, and zero transactions costs but provides predictions about behaviour that fit empirical observations well.

4.4 Research Methodology

Consistent with the positivist approach in the previous section, accounting studies embrace quantitative methods, also known alternatively as market-based, mainstream, scientific and positivism. Recently, quantitative approaches followed in accounting studies have become more popular as a result of the increasing availability of electronic database sources such as DataStream, Bloomberg and Compustat and online annual reports which provide financial information and data. Researchers of quantitative studies are engaged with the operationalisation, prediction, manipulation, and testing of empirical variables, emphasising research design, procedure, and statistical measures of validity (Frankfort-Nachmias & Nachmias, 1996). In short, the current study will use one type of data collection method which is quantitative data (Bloomberg and annual reports). An OLS regression model is the primary technique used to determine the variables' influence on the relationship between corporate governance internal mechanisms and firm performance. Consistent with majority of studies in the developed world (e.g Dedman (2003), Lasfer (2006), Peasnell et al. (2000), Young (2000)) and public policy interest and concern surrounding large firms, and in order to investigate the research questions identified previously, it was decided to analyse a

substantial population of UK listed companies and concentrate solely on large non-financial companies, as the financial firms need to follow additional regulations.

Alexander (2004) discusses the way that financial sectors and banking are subject to different corporate governance regulations to the non-financial sectors due to the higher risk that these financial institutions represent to the economy. Selecting large financial firms as well would obscure the ability to compare the findings of this study with the majority of other empirical studies in this field. In addition, econometric analysis is followed and applied to deal with large sample quantitative data of this sort.

4.4.1 Sample selection, justification of the sample period and look-ahead bias

Some variables are used as proxies for both firm performance and corporate governance internal mechanisms to investigate the relationship between them. Figure one presents the conceptual framework of this study and it shows that two measures— market measures (Tobin's Q) and Accounting measures (Return on Assets) are selected for firm performance and board characteristics, ownership structure and financial policies for corporate governance mechanisms. Also, firm size and industry are the two control variables used in the current study that may have an impact on the relationship between corporate governance internal mechanisms and firm performance. The sample is considered the list of member companies of the FTSE All Share Index between two particular points: the end of December 2004 and the end of March 2011. FTSE All Share Index as defined by Bloomberg: The FTSE All-Share Index is a capitalization-weighted index comprising of the FTSE 350 and the FTSE SmallCap Indices. This research studied the FTSE All Shares non-financial companies because all are concerned and governed with the same code; however the study excluded the financial firms due to significant differences in regulation and debt structures. The period of the study selected is from 2005 to 2010 which is over six years. This period falls after the main regulations arising from several key reports (Cadbury 1992, Greenbury Report 1995, Hampel Report 1998, The Combined Code 1998, Turnbull Report 1999, Myners Report 2001, Smith Report 2003, Higgs Report 2003 and The Combined code 2003), where all the major recommendations suggested in these reports and reforms have been settled. Selecting the period of study across six years, recognizes and identifies the evolution and impact of internal corporate governance mechanisms on firm performance using both accounting and market measures (Tobin's Q and ROA).

All the previous works in this area were widely used and focused on large companies, for instance past research in the USA has been mainly focused on big companies, and thus selecting the FTSE All Share is compatible, similar and comparable with these studies, as it includes the most influential listed companies both economically and financially. Moreover, in the UK the Corporate Governance Code is more applicable to large companies rather than smaller ones. The analysis period is between 30 June 2004 and 30 June 2010, with several reasons dictating this process. Survivorship bias is an important statistical problem as a recognizable part of the sample required to be chosen as at the start of the analysis period, but as the period of the study is over six years, some of these members which appear at the beginning of the analysis period disappear over the course and towards the end of the analysis period. Thus the sample was replenished in order to make up for the missing members and to make a representative view of the corporate governance evolution across the time tested in this study. It could have followed a simpler and straight-forward approach to include all the companies that were members at the index at any time within the period of the study between 2005 and 2010. However, data cost and analysis demands would have increased greatly in this case, so an alternative approach was adopted where the companies are classified with regards to their survival on the index and the sample finally included all the companies survived for terms of 6, 5 and 4 years. After excluding the financial firms, the sample consisted of 363 companies which survived over 6, 5 and 4 years. Appendix Ch. 3.1 shows the process of finalising the sample and the final sample of 363 companies with its names, code, the industry of each company and number of years survived across the sample period, the following table 3.1 indicates with numbers how the sample was finalised.

Table 4.1 Summary of the sample of the study

Total Number of FTSE All Shares as stated in Bloomberg		**623**
	Minus	
	Financial Companies	57
	Equal	
	Non-Financial Companies	**566**
	Companies survived 1 year	83
	Companies survived 2 years	66
	Companies survived 3 years	54
	Companies survived 4 years	**39**
	Companies survived 5 years	**48**
	Companies survived 6 years	**276**
FTSE All Shares that survived over 3 years consist the sample of the study excluding Financial Companies		**363**

In addition, the Bloomberg data has been validated to ensure its accuracy. 25 firms from the sample have been selected randomly; the Bloomberg data for these firms has been cross-checked with the firm's annual reports and found to reconcile precisely. This certifies the accuracy of Bloomberg data which has been used for the study

Figure 3.1 displays the data related to the variables needed to test the hypothesis with the sources of these data. Table 3.2 presents the main sources of data and its specific information also table 3.3 shows the sample summary with regards to the industry classification.

Internal Corporate Governance mechanisms: In addition to the usual suspects, namely managerial ownership, ownership concentration and board structure, there is an emphasis on how Financial Policies (Debt and Dividend) and executive compensation have an impact on the performance of the firm.

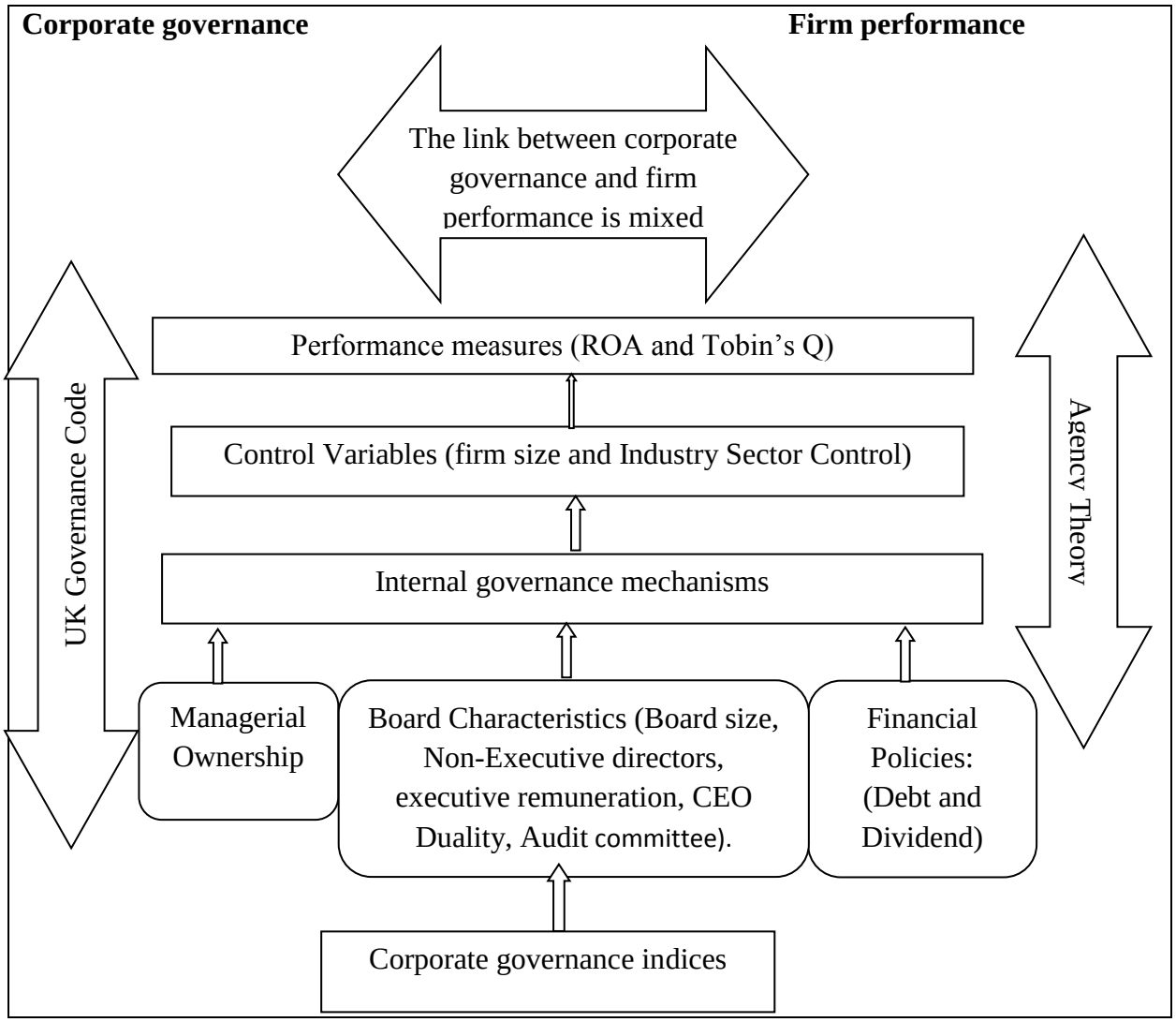


Figure 4 Model of the firm performance and corporate governance mechanisms

Table 4.2 Main sources of data and its specific information

Source of data	Types of data	Specific information
Bloomberg and annual Reports	Board characteristics, directors ownership and directors remuneration	Board size, Independent directors, CEO Duality, Role, Audit Committee and number of shares owned by directors and executive and non-executive remuneration
Bloomberg and annual reports	Financial Policies (Debt and dividend), firm size	Total debt, Earnings Per share, Dividend per share and Total assets

Table 4.3 Industries classification based on the Bloomberg Industry Classification Benchmark (ICB)

8 industries chosen in the sample	Number included in the Sample
Basic Materials	23
Consumer Goods	38
Consumer Services	103
Health Care	19
Industrial	111
Oil and Gas	20
Technology	38
Utilities	11
Total	363

As discussed in the literature review chapter, firm performance measures in previous studies are divided into two groups: market-based and accounting measures. Take into consideration that no consensus has emerged concerning the selection of a dependent variable for measuring firm performance, where any measure selected has both disadvantages and advantages. Therefore, both performance measures from the two groups of studies are employed in this study, thus the robustness of the results are improved. The dependent variables are described in Table 3.4.

Table 4.4 Dependant variables Description

Variables	Bloomberg definition and measurement	Previous studies	Measured by	advantages
Tobin's Q	Definition: Ratio of the market value of a firm to the replacement cost of the firm's assets. The Q ratio is useful for the valuation of a company. It is based on the hypothesis that in the long run the market value of a company should roughly equal the cost of replacing the company's assets (Bloomberg, 2014).	Morck et al. (1988), Cho (1998), Hermalin and Weisbach (1991), McConnell and Servaes (1990), Agrawal and Knoeber (1996), Davies et al. (2005), Deb and Chaturvedula (2003), and Omran et al.(2008)	The ratio is computed as follows: (Market Cap + Liabilities + Preferred Equity + Minority Interest) / Total Assets Where, Market Cap is, (Bloomberg Field Definitions), Historical _Market_Cap Liabilities is, BS_TOT_LIAB, Preferred Equity is, BS_PFD_EQY Minority Interest is, BS_MINORITY_INT Total Assets is, BS_TOT_ASSET	This measure indicates what management will accomplish with assets. This measure is based on the investors' perception and influenced by future events.

ROA	Definition**:** Return on Assets (ROA, in percentage) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. Calculated as: (Trailing 12M Net Income / Average Total Assets) * 100 Where: (Bloomberg Field Definitions) Trailing 12M Net Income is, TRAIL_12M_NET_INC Average Total Assets is the average of the beginning balance and ending balance of, BS_TOT_ASSET	Denis and Denis (1994), Lehmann and Weigand (2000), and Xu and Wang (1997)	ROA= Net Income/ Total Assets (Bloomberg, 2014).	This measure indicates what management has accomplished with assets because usually managers use the firm's assets for their interests. Therefore, less ROA means inefficiency.

4.4.2 Descriptions of Dependent Variables: Tobin's Q and ROA

The link between firm performance and other variables such as corporate governance variables has been the centre of a large number of empirical works. Both measures (market and accounting) of firm performance have been chosen differently and employed in different studies. Several studies such as Yermack (1996), Booth and Deli (1996), Cotter and Silvester (2003), Hayes, Mehran and Schaefer (2004) and Coles, Daniel and Naveen (2004) use market to book ratio (Tobin's Q) as firm performance measure. Although these studies have used the market to book ratio which is the common measurement, the calculation is applied differently amongst these studies, for instance Yermak has utilised market value divided by the replacement value of assets, while Booth and Deli has only taken into consideration the given total value of the assets as its denominator in their calculation. As a consequence, considering that these two studies have chosen similar samples, the firm performance would be different due to the selection of the calculation where the value of the assets, issue of recognition and measurement of the Q components and methods of estimation are different.

4.4.2.1 Tobin's Q

Tobin's Q was first introduced by Tobin in 1969, but several articles have discussed the development of this measure. For instance, Perfect and Wiles (1994) compare 5 estimators of Q; taking their findings into account Chung and Pruitt (1994) noticed the computational difficulty in calculating Q after Lindenberg and Ross (1981). They changed the calculation of Q and simplified it assuming that the replacement values of assets like equipment, inventories and plants are similar to their book values. They tested Q values of their model and Lindenberg and Ross Tobin's Q model by carrying out a study for ten-year cross-sectional comparisons and they found the same results under both models.

A further study by DaDalt, Donaldson and Garner (2003), comparing the build of Q components between the simple approach represented by Chung and Pruitt (1994) model and the computationally costly approach used by Perfect and Wiles (1994), advocated that the simple approach is more preferable. They proposed that deviation in Q is possibly related to the variations within the firm in terms of financial characteristics like profitability, leverage and liquidity.

4.4.2.2 Return on Assets (ROA)

The return on assets measure has faced some critics within the management literature such as Dalton et al. (1998, p. 274). But this ratio is still considered and viewed as a valid performance measure; it is important and has been broadly used within the governance research examples. The criticism is based on and due to the imperfect measurement with relation to assets and profits and preserve incentives on internal decision-making. It is believed that much of the imperfect measurement critics are likely to be linked to industry membership in cross-sectional analysis studies where the issue could be solved and controlled for by using industry membership as a control variable. The preceding table provides details of the firm performance measures chosen for this thesis.

4.4.3 Independent variables

Figure one in section 3.5.1 presented the corporate governance internal mechanisms that are identified as independent variables in this thesis. These variables are: managerial ownership, independent directors, executive remuneration, board size, role duality, Audit Committee, Debt, and Dividends. The following table 3.5 presents these variables with the theoretical context, definitions from Bloomberg and how they have been covered in some empirical works.

Table 4.5 Independent variables Descriptions

Variable	**Bloomberg Definitions**	**Measured by**	**Theoretical**	**Empirical**
Director Ownership (DIRW)	Percentage of outstanding shares currently held by insiders.	DIRW is the total shareholdings of directors over the total number of shares.		Hermalin and Weisbach(1991), Short and Keasey (1999), Lau(2004), Morck, Shleifer, andVishny(1988), and McConnell andServaes(1990) non-linear relationship Davies,Hillier, and McColgan (2005)interdependent with each Other Himmelberg, Hubbard and Palia (1999) could not conclude the effect Dermsetz and Villalonga (2001) find no statistical significant relationship Chung and Pruitt (1996) CEO equity ownership positively influences Tobin's Q

Independent directors (INDEP)	Number of Independent directors on the company's board as reported by the company. Independence is defined according to the company's own criteria. The company has a Supervisory Board and a Management Board; this is the number of Independent Directors on the Supervisory Board. Independent directors as a percentage of total board membership	Proportion of non-executive directors to total number of directors	Fama and Jensen (1983); Cadbury Committee (1992); Weisbach (1988); Jensen and Meckling(1976	Rosenstein and Wyatt (1990); Hermalin and Weisbach (1998); Agrawal and Koneber (1996); Choi et al. (2007)
Audit	Number of meetings of the Board's Audit Committee during the reporting period.	Dummy variable; 1 if there is an audit committee, 0 otherwise	Menon and Williams (1994); (DeZoort et al (2002); Brodsky et al (2003); (Carcello and Neal 2000)	Agrawal and Chadha (2005); Abbott et al (2004); Archambeault and DeZoort (2001); Abbott and Parker (2000).
Role duality (ROLE)	Indicates whether the company's Chief Executive Officer is	Dummy variable; 1 if the chairman is also the CEO,	Cadbury Committee (1992) Jensen and Meckling (1976); Jensen (1986)	

	also Chairman of the Board as reported by the company. "N" indicates the two roles are separate.	0 otherwise		Rechner and Dalton (1991); Faccio and Lasfer (1999); Vafeas and Theodorou (1998); Haniffa and Hudaib(2006)
Board size (BSIZE)	Number of Directors on the company's board, as reported by the company; these are full time Directors only. Deputy members of the Board will not be counted. The company has a Supervisory Board and a Management Board; this is the number of Directors on the Supervisory Board.	Total number of directors on the board	Jensen (1993); Lipton and Lorsch (1992); Pearce and Zahra (1992)	Bhagat and Black (2002); Coles et al. (2008); Kholief (2008); Yermack (1996); Conyon and Peck (1998); Haniffa and Hudaib(2006)
Executive remuneration (EXCREM)	The ratio of total cash compensation that is provided to executive directors to total assets		Harvey and Shrieves (2001); Kamg et al. (2006); Perry (1999); Jiraporn et al. (2005).	Conyon (1997); (Florackis and Ozkan (2008
Debt (DEBT)	Total debt to total assets (in percentage) is calculated as	Total debt/total assets	Jensen and Meckling (1976); Jensen (1986); Easterbook (1984)	Agrawal and Knoeber (1996); Bohren and Odegaard (2001); Haniffa and

	follows: ST Borrowings + LT Borrowings ---------- * 100 Total Assets			Hudaib(2006); Aljifri and Mustafe (2007)
Dividend (DPout)	Returns the latest reported annual dividend per share Bottom-line Earnings per share. It includes the effects of all one-time, non-recurring and extraordinary gains/losses. It uses Basic Weighted Average Shares excluding the effects of convertibles. Computed as Net Income Available to Common Shareholders divided by the Basic Weighted Average Shares outstanding.	Dividend per share/earnings per share	Jensen and Meckling (1976); Jensen (1986); Easterbook (1984)	Lang and Litzenberger (1989); Bohren and Odegaard (2001); Aljifri and Mustaf2 (2007)

4.4.4 Control variables

In addition to the independent variables, a number of control variables that have previously been important in determining firm performance are included in the analysis. Firm size and industry are the two control variables chosen for this thesis to control other potential impacts on firm performance. They have been used in several studies examining the relationship between firm performance and corporate governance mechanisms (See Table 3.6). Demsetz and Lehn (1985) suggest that governance characteristics may differ, depending on firm size, and (Shivdasani, 1993) type of industry.

Short and Keasey (1999) point out that firm performance could be affected by firm size in two ways, firstly large firms are able to generate funds internally and additionally have easier access to external sources for funds which could be available to support any investment in profitable projects. Secondly, large firms are able to make entry obstacles to improve the performance. Black, Jang and Kim (2006) argue that management and control of large firms are more difficult and they look for advanced corporate governance. The agency cost in large firms is more existent and obvious because managers in these firms have greater discretion which leads to higher monitoring costs (Jensen & Meckling, 1976). However, small size firms might have lower monitoring costs and lower relative investment in internal control mechanisms (disclosure and information systems). Thirdly firm size has been shown to have relationship with governance mechanisms, for example there is evidence that firm size affects firm's compensation policies. Results from Gaver and Gaver (1993) show significant positive association between level of cash compensation and firm size. While Jensen and Murphy (1990) findings indicate that large firms' CEOs tends to have less compensation based incentives than CEO in smaller firms. This could be due to large diversification of ownership in the large firms and the management being controlled by other mechanisms. Generally, the total compensation includes salary, bonus, value of restricted stock, savings and thrift plans, and other benefits. Jensen and Murphy (1990) in their study defined total compensation as the sum of salaries, bonuses, fringe benefits, the face value of deferred compensation unadjusted for the cost of restrictions on marketability and the time value of money, and restricted stock awarded during the year (valued at the end of- year stock price). Cyert et.al (2002) find a strong positive relationship between contingent compensation and firm size and that the level

of total CEO compensation is related to firm size. Fourthly, size of the firms may affect corporate governance structure in several ways. For example, the cost of complying with the Code's requirement will be relatively low for larger firms. On the other hand, following non-compliance with the Code, larger firms are exposed to higher levels of media enquiry than smaller firms. Large firms would be able to attract candidates for non-executive directorships because of the esteem associated with being on the board of large corporation.

The empirical work shows that firm size is a crucial variable with regards to the characteristics of the board of directors. There is a significant positive relation to the board size and to the external directors but with the CEO duality it is negatively correlated (Hossain et al., 2001). Welch (2003) studied the relationship between ownership structure and firm size for Australian listed firms and found a negative relationship. His findings support the idea that if firms become larger it leads to a reduction in ownership concentration, which means that shareholders may have to make more investment to be able to get a high level of shareholdings. Accordingly, he argued that the relationship between firm size and firm performance measured by Tobin's Q is negative.

Another study has found results consistent with Welch's findings; Haniffa and Hudaib (2006) studied Malaysian firms and found that the market recognizes that small firms perform better than larger firms. In other words, small firms are perceived to have greater growth opportunity than the larger firms where it is possible for smaller firms to grow proportionally in size more than larger firms. Apparently, firm size possibly affects both ownership structure and board characteristics. Therefore, firm size is chosen to be a control variable in this thesis to examine how firm performance is affected by internal corporate governance mechanisms.

The industry variable is the other variable selected to control any potential impact of other factors on firm performance which have not been controlled for. Firm performance could be affected by the sensitivity of the industries, macroeconomic and other political factors, thus industry sector is a key figure of firm performance (Short and Keasey, 1999). Also, an industry dummy variable is important as a control variable for the probable specious relationship between ownership structure and firm performance, which could be originated from the industry influence (Demsetz and Lehn, 1985). Black et al (2006) argue that firms operating in highly competitive industries have an efficient performance. The following table 3.6 presents control variables, their definitions and previous work.

Table 4.6 Control Variable Descriptions, definitions and previous work

Variables	Bloomberg definitions	Measured by	Previous Studies
Firm size	The total of all short and long-term assets as reported on the Balance Sheet.	Total assets.	Demsetz and Lehn (1985); Morck et al. (1988); McConnell and Servaes (1990); Hermalin and Weisbach (1991); Haniffa and Hudaib (2006); Mura (2006); Wiwattanakantang (2001); Bhagat and Bolton (2008).
Industry	Industry Classification Benchmark (BICS).	Dummy variables for each of the 8 industries based on Bloomberg Industry classification standard (BICS).	Agrawal and Knoeber (1996); Bhagat and Black (2002); Choi et al. (2007); King and Santor (2007); Claessens et al. (2002); Wiwattanakantang (2001); Haniffa and Hudaib (2006); Alford (1992).

4.4.4.1 Total assets as a measure of firm size

Total assets, market value, total sales and number of employees have all been used as firm size measures in different empirical works. However, there is no consensus in the literature about how to measure firm size. The following studies have used total assets as the firm size measure: Demsetz and Lehn (1985), Friend and Lang (1988), Morck et al. (1988); McConnell and Servaes (1990); Hermalin and Weisbach (1991); Comment and Schwert (1995), Harford (1999), Wiwattanakantang (2001), Gönenç and Arslan (2003), Carter, Simkins, and Simpson (2003), Blokdijk et al., (2003), Deesomsak, (2004), Moeller et al., (2004) Padron (2005), Barontini and Caprio (2005), Haniffa and Hudaib (2006); Mura (2006); Santalo´ and Diestre (2006), Bhagat and Bolton (2008), Chu (2009), Chen and Chang, 2010), Khatap et al. (2011) and Saliha and Abdessatar (2011). The main purpose behind choosing total assets as a measure for firm size in this study is for the findings to be comparable with the above studies. In addition, the Bloomberg data underlying this study uses total assets as a measure for a firm size. Every firm size measure exhibits advantages and disadvantages, and no measure can

capture all characteristics of firm size. Generally speaking, total assets measure total firm resources; market capitalization involves firm growth opportunities and equity market condition; total sales measure product market competition and is not forward looking.

4.4.5 Mathematical expressions of the regression models

The following simple linear regression has been used to examine the relationship between firm performance and its governance structure.

Firm performance =f (board independence, board size, audit, CEO duality, managerial ownership, executive remunerations, debt, dividend pay-out, log firm size, and industry control)

That is,

$$Performance=\alpha+\beta_1 INDEP + \beta_2 BSIZE+ \beta_3 AUD+\beta_4 ROLE+\beta_5 DIRW+\beta_6 EXCREM+\beta_7 DEBT +\beta_8 DPout +B_9 FSIZE + \beta_{10} INDUS + \varepsilon$$

$$Tobin's\ Q = \alpha + \beta_1 DIRW+ \beta_2 INDEP + \beta_3 BSIZE+ \beta_4 EXCREM+\beta_5 ROLE+\beta_6 DEBT +\beta_7 DPout +\beta_8 AUD+ \beta_9 INDUS +B_{10} FSIZE + \varepsilon$$

And

$$ROA = \alpha + \beta_1 DIRW+ \beta_2 INDEP + \beta_3 BSIZE+ \beta_4 EXCREM+\beta_5 ROLE+\beta_6 DEBT +\beta_7 DPout +\beta_8 AUD+ \beta_9 INDUS +B_{10} FSIZE + \varepsilon$$

4.5 Research Hypothesis

The role of the board of directors is mainly to promote the interests of the shareholders of the firm. Shareholders of the firm elect the board to run their firm and to act on their behalf; consequently the board plays a monitoring role on the management team. Thus the role of the board is vital for the whole business. There are two categories of directors compromising the board: executive and non-executive directors. The executive directors are viewed as part of the management team and therefore it is rational to assume that their monitoring role, whether for their own performance or the performance of other members, would be difficult. But the non-executive directors are seen as outsiders in the firm due to their little or no

financial associations with the firm they work for, apart from directors' fees. Thus the role of non-executive directors is important with respect to responsibility towards the monitoring role of firm performance and other members on the board.

However, practically there are some serious questions regarding the effectiveness of the non-executive role in monitoring the management. Firstly, some non-executive directors embrace multiple directorships where they are themselves executive and non-executive directors on other boards in other firms. Thus, their monitoring role as non-executive directors on the firm they serve in this purpose would be less effective due to the lack of time being spent with respect to the affairs of this firm. In addition, resulting from the multiple roles it is possible to have business or personal relationships with other directors on the board. Secondly, there could be an issue with respect to information asymmetry, where executive directors have prompt access to obtain the right, accurate and additional information, but non-executive directors might be unable to achieve the same. As a consequence, the information obtained by non-executive directors does not have the same quality as executive information and that could be uncertain to some extent. Moreover, as mentioned previously, their financial links with the firm are small or non-existent, thus there could be less motivation for them to work on increasing the financial performance of the firm, as there is no gain achieved on their side, and hence their monitoring role is less effective because their incentives are small. Agency theory clarifies the problem of information asymmetry between management as executive directors and shareholders and identifies the importance of aligning the interest and incentives between management and shareholders.
There are seven variables hypothesised to impact firm performance which are examined in this quantitative study. The following section presents each of these variables.

4.5.1 Independent directors

The definition of board independence is that there are non-executives (independent directors) on the board of directors. The recommendations of the Code of Best Practice suggest that non-executive directors should be represented on the board and they are recommended to be independent. Independent directors are so defined: "*The board should determine whether the director is independent in character and judgement and whether there are relationships or circumstances which are likely to affect, or could appear to affect, the director's judgement. The board should state its reasons if it determines that a director is independent*

notwithstanding the existence of relationships or circumstances which may appear relevant to its determination" (The Combined Code 2008, 8). From a theoretical point of view (Berle and Means, 1932, Fama and Jensen, 1983, Jensen and Meckling, 1976, and Weisbagh, 1988), it has been proposed that agency problems are mitigated by boards dominated by external directors or non-executive directors (NEDs) who act to control and monitor the decisions of managers. The theory additionally proposes that NEDs' presence secures informed evaluation to monitor and review the performance of managers, leading to the removal of non-performing CEOs (Weisbagh, 1988). However, Cadbury Code (1992) recommends that non-executive directors possess particular characteristics such as independence and experience, and they are aware of their reputation and keen to keep it credible in the external labour market (Fama and Jensen 1983); yet their impact on performance is not strongly evident and thus it is not supportive to this positive perspective. Several studies found that the independent directors' presence on board could in fact affect negatively the performance of the firm, claiming that requisite skills are not brought to the job by these non-executive directors. This could be dependent on the view that non-executive directors are generally not provided with enough information about the company. Hence, they cannot play a major critical role in monitoring managers and prefer to be less confrontational (Agrawal and Knoeber, 1996 and Franks et al., 2001). Therefore, if there is a need to increase the representation of outside directors, it could be that there are not sufficient directors who are available and have the necessary qualities for the job.

The evidence of the impact of the non-executive directors on firm performance has produced mixed results in several empirical works. Baysinger and Butler (1985), Rosenstein and Wyatt (1990), Byrd and Hickman (1992), Rodriguez and Anson (2001), Brown and Caylor (2004), Dahya and McConnell (2005), Mura (2007), Black et al (2006), Abu-Tapanjeh (2006) and Choi et al (2007) found that NEDs role in monitoring management is useful and positively impacts firm performance. Thus, their role could help put some restrictions with regards to managerial discretion.

However, other studies did not find any evidence that additional independent directors increase firm performance—including Hermalin and Weisbacg (1991), Mehran (1995, Yermack (1996), Vafeas and Theodorou (1998), and Hossain et al (2001)—or that independent directors could have a negative impact on firm performance Agrawal and Knoeber (1996), Klein (1998), Bhagat and Black, (2002), and Abdullah, (2007). Weir and

Laing (2000) examined the relationship between non-executive directors and firm performance in the UK and found a negative association. However, taking into account that the nature of relationship is possibly a simultaneous relationship, the rise of the presence of non-executive directors on board was thus due to the poor performance rather than the reason causing the poor performance.

In the debate concerning governance in the UK and the U.S. the presence of NEDs (independent directors) has been attracting attention as one of the most influential recommendations. Independent directors have the power and capability to apply a monitoring process objectively and effectively on the actions of the managers. A minimum number of independent directors or percentages have been recommended by numerous codes on governance as boards need to be able to be influential on monitoring role on managers' actions and decisions. From the theoretical point of view and in consistency with the Cadbury Code (Cadbury committee, 1992), NEDs or outside directors could be desirable and effective for companies due to the act that they could assist in controlling opportunistic behaviour of the managers and in reducing the agency problems (Jensen and Meckling, 1976). Therefore, the first hypothesis states:

H1: A positive relationship exists between firm performance and the proportion of independent directors.

4.5.2 Role Duality

Duality occurs when the roles of chief executive officer (CEO) and chairman are combined and represented in the same person. It is considered another board structure control mechanism. Fama and Jensen (1983) point out that the agency model claims that boards are harder to be controlled when they are dominated by executive directors; this scenario is similar and applicable to role duality. It is claimed that having both positions occupied by the same person could be viewed as a potential advantage as they would have enough knowledge and better understanding of the operating environment in the company. The contrary view was supported by the Cadbury Committee as they regarded such practice as detrimental due to a single person being powerful and enjoying abundant power in the course of taking decisions (Cadbury 1992).

Taking this issue on board, the Code of Best Practice clearly recommended that division of responsibility is needed, and if duality occurred, a balanced policy within the board should

show enough independence to deal comfortably and effectively with the case. However there is not enough evidence to back up the stance of Cadbury that duality is detrimental or undesirable based on the findings in the empirical work, as the findings and results are mixed. Rechner and Dalton (1991) studied 141 corporations in the USA for the 5 year period 1978-1983; this study aimed to produce comparable results of financial performance for a number of years between firms that do not have duality roles and others with CEO duality. Sanda et al. (2005) examined the relationship between firm financial performance and the efficiency of corporate governance mechanisms. The sample of the study is comprised of 93 firms quoted on the Nigerian Stock Exchange from 1996 to 1999. Both studies found that duality causes the board to be less effective and efficient with respect to decision-making and dealing with CEOs. Within the same framework, Rechner and Dalton (1991) found that firms with role duality perform less well than firms without role duality. Other studies such as Baliga et al (1996) examined the relationship between duality and firm performance, using the Fortune 500 companies in the US from 1980 to 1991. Brickley et al (1997) and Dalton et al (1998) have found no impact of duality on performance.

However, Kyereboah-Coleman and Biekpe (2006) and Abu-Tapanjeh (2006) found that firms with role duality performed better than firms without role duality. Some other studies, such as Daily and Dalton (1992), Faccio and Lasfer (1999), Weir et al (2002), Dahya and McConnell (2005a) and Haniffa and Hudaib (2006) found no significant relationship between firm performance and role duality. Studies in UK such as Vafeas and Theodorou (1998) and Weir and Laing (1999) found that role duality neither improves nor harms the performance.

There are several reasons which suggest that the separation of role between chairman and the CEO is the best practice. From the theoretical point of view, combining all the decisions by the board of directors and management into one individual will ultimately decrease the effectiveness of the board in monitoring the managers. The Cadbury Report recommended a split between the roles of chairmen and CEO. A number of companies around the world that combined the roles of chairmen and CEO in one person have faced financial crisis and bankruptcy problems. Therefore, one of the main reasons for these two roles to be split is minimising the risk and improving performance. The current study predicts the relationship between firm performance and role duality to be negative.

H2: A negative relationship exists between role duality and firm performance

4.5.3 Audit

The Cadbury Report did not only identify a specified structure of the board but also made some recommendations that all public listed companies should set up a number of internal board sub-committees. Consistent with the agency model, the Cadbury Report argued that audit committees were an added control mechanism that guaranteed the interest of shareholders was being protected. The promotion of effective financial management of the company and increasing accountability helped to achieve the protection of shareholders' interests (Cadbury 1992). A number of potential benefits could be achieved by an effective audit committee. It helps the board to meet and maintain its statutory and fiduciary duties by establishing better links between the internal and external auditors and the board. Collier (1992) stressed that the credibility of financial statements therefore should be improved by the work of the audit committees. Additional to the recommendation for establishment of the audit committee, the Cadbury Report also proposed that the committee should have at least three members and should be comprised of non-executive directors, where the majority of whom should be independent. Therefore, the audit committee is considered another internal governance mechanism in which its impact should be an improvement in the quality of the financial management of the company and hence its performance.

The impact of the audit committee on firm performance has received little attention. Vafeas (1999) found that the quality of board subcommittees and structure gives insights into those in charge of controlling and monitoring duties and roles within firms. Wild (1994) reveals that the reaction of the market was more favourable towards earning reports after an audit committee had been established. However, Klein (1998) found that neither the structure of the audit committee nor its presence had an impact on a range of market performance and accounting measures. Also, Vafeas and Theodorou (1998) reported that no proof is found to support the claim that the board subcommittees' structure had any significant impact on performance. Therefore, the third hypothesis states:

H3: A positive relationship exists between audit committee presence and firm performance.

4.5.4 Debt financing

Jensen (1986b) points out that another internal corporate governance mechanism is debt financing whereby free cash flow is decreased by increased debt and also increased debt limits managerial discretion. He argued that debt makes the managers use the excess funds to

service the debt of the firm rather than spend these funds on projects with negative present values. It is argued that agency problems in a firm are normally associated to asymmetric information and free cash-flow. It is broadly recognised that debt servicing obligations, in particular the privately placed ones, for instance bank debt, could assist in reducing such types of agency problems (Jensen, 1986; Stulz, 1990; and Ross, 1977). For example, announcing bank credit agreement transfers positive news to the stock market about the worthiness of the borrower and, thus, it reduces the asymmetric information between investors and borrowers. Furthermore, in comparison with publicly traded debt it is argued that bank debt has an advantage in monitoring the activities of a firm and in collecting and processing information. Consequently, Fama (1985) found that bank lenders gain a comparative advantage in reducing information costs and having an access to information unavailable to the public.

To reiterate, it is argued that debt is considered another effective mechanism for reducing agency problems (Jensen and Meckling (1976). For instance, additional debt decreases the necessity for issuing external equity and reduces the existing problem between shareholders and managers, thus the alignment of interest between managers and shareholders is increased and established. Furthermore, Jensen (1986) added that debt represents the commitment of managers to pay out cash-flows to creditors; therefore, it helps in overcoming the free cash-flow problem. In conclusion, the threat of bankruptcy is increased by debt as a risk for stopping the debt interest and repayment of principal. As a consequence of such existing threat, the managers fear the potential loss of their reputations and thus they are more likely to work harder and strive to improve the performance of the firm and increase the profit.

The effect of debt on firm performance has been mixed, based on a number of empirical studies. Several studies such as Dahya and McConnel (2005a); Beiner et al. (2003); Al-khouri (2006); and Javed and Iqbal, (2007) have found a positive relationship between firm performance and debt ratio. They argued that firms could use debt policy as a good mechanism to reduce any conflict with shareholders and increase the performance of the firm. However, several other studies have found a significant negative relationship between firm performance and debt (Aljifri and Moustafe, 2007, Bohren and Odegaard, 2001; Haniffaa and Hudaib, 2006; McConnell and Serveas, 1995; Short and Keasey, 1999, and Weir et al, 2002). In summary, while debt leads to bigger bankruptcy costs or debt agency costs, it also has an ability to lead to better performance for different reasons.

From a theoretical point of view, debt could put a limit on the misbehaviour of the managers and decrease the interest problem between shareholders and managers, as it decreases the opportunistic perspective of the managers (Jensen and Meckling, 1976). Debt can be used to alarm the firms to pay out cash-flows to creditors, thus it is assisting in overcoming free cash-flow issues (Jensen, 1986). Finally, debt increases the bankruptcy threat that could affect the reputation of the managers; it is thus more likely that the managers of the firms will be more encouraged to work hard, improve performance and increase profit. This understanding leads to the following hypothesis:

H4: Firms with a higher level of debt have a higher level of performance

4.5.5 Dividend

There are a number of studies that have suggested managers could utilise a substantial amount of retained equity funds to make an investment in negative NPV projects rather than delivering this money to the shareholders, thereby causing growth in firm size (for instance, Easterbook, 1984 and Jensen & Meckling, 1976). Furthermore, it is argued that high-dividend pay-out guarantees that the largest part of the cash is given to the shareholders, where the managers were left only with a small amount which could finance risky projects or the firm is forced to the market in order to attract new equity (Jensen, 1986). Additionally, Easterbook (1984) argued that managers have to make the public aware of the future plans to catch attention and attract new investors. Moreover, it is believed that a negative relationship exists between dividend policy and shareholders' rights based on the general consensus. In simple terms, studies have argued that shareholders are more likely to accept the cash being used by the firm for good projects when they perceive that their rights are strongly protected, whereas when their rights are poorly protected, they look rather for dividends regardless of the growth opportunities the firms could miss. Several empirical studies have found results consistent with this perspective and have reached such a conclusion (Alwi, 2009; Bohren & Odegaard, 2001; La Porta et al., 2000 and Mitton, 2004). However, a positive relationship exists between firm performance and dividend policy from a theoretical perspective. Therefore, the following hypothesis is:

H5: A positive relationship exists between firm performance and dividend pay-out

4.5.6 Board size

As a corporate governance mechanism, board effectiveness is largely dependent on its composition and size. Smaller boards are generally less powerful than larger boards and hence it is considered that large boards are necessary for organizational effectiveness. Large powerful boards are able to strengthen the association between firms and their surroundings; they help to provide counselling and advice with regards to strategic decisions for the firms and play an essential role in making corporate identity (Pearce and Zahra, 1992). However, other studies examine the effectiveness of board size and reveal that small boards are more effective. This argument is underlined by the fact that smaller boards are less cumbersome with regards to coordination, communication and decision-making processes (Jensen, 1993; and Lipton and Lorsch, 1992)).This view is supported empirically by Yermack (1996), Eisenberg et al. (1998) and Beiner et al. (2006).

Although the results are mixed from previous empirical studies with regards to the relationship between firm performance and board size, the general consensus of researchers tends to the smaller boards. Even though some studies like Zahra and Pearce (1989), Klein (1998), and Bathula (2008) have argued that large boards provide resources to firms and provide more experience and discussion and offer effective control for management, Yermack (1995) and Conyon and Peck (1998) found a negative relationship between firm performance and board size. Empirical studies argue that directors' behaviours may be managed more effectively by small boards and that they are able to improve firm performance. In addition, given that the board size is small, every member could be easily monitored and decisions could be made quicker. Thus, the following hypothesis is drawn:

H6: A negative relationship exists between board size and firm performance

4.5.7 Director ownership

The arguments on the relationship between performance and ownership structure have been identified in the literature review in chapter two. There are a few arguments which have been presented and discussed: monitoring argument (McConnell and Servaes, 1990; Denis, Denis and Sarin, 1997), incentive alignment argument (Mura, 2007), entrenchment argument (Hutchinson, Gul and Leung, 2005; Rosenstein and Wyatt, 1990; Short and Keasey, 1999) and takeover premium argument (McWilliams, 1990; Bradbury and Mak, 2002; Cosh, Guest and Hughes, 2006).

The effects of the separation of ownership and control on firm value are mitigated by the presence of shareholders who holds a high percentage of the capital of the firm. It is very costly for small shareholders to form a coalition in order to remove the manager who is engaged in value reducing activities in a firm where each small shareholder has only a small fraction of the capital of the firm. A shareholder who only possesses a small percentage of stakes does not have very strong incentives to get engaged in the monitoring process of managers because he will concede all the costs involved in this process while only receiving a small portion of the overall benefits gained. In contrast, in another ownership structure there is a huge potential for discouraging managers from getting involved in opportunistic behaviour when one or more shareholders possess a large stake of the shareholding.

The suggestion in the incentive argument is that when the management owns more equity it could lead to an improvement in firm performance because it means a better alignment of interest or goals have been achieved between other equity owners and management. Directors on the board whose own wealth is connected to the value of the firm will have the incentive as well to align their interest with other shareholders and act to maximize shareholder value. If other shareholders cannot assess in a costless way the extent to which an owner-director imposes agency costs on them, the market value of the firm's stock will be reduced, decreasing therefore the owner's wealth. Increasing stock ownership by directors and managers is considered an effective control mechanism to decrease the moral hazard behaviour of companies' managers in a large amount of literature. Therefore, if this is proven as an effective control mechanism, then it is likely an increase in its use would persuade a reduction upon other costly monitoring mechanisms like appointing non-executive directors or outside directors on board. The entrenchment argument proposes that with more equity ownership, the managers are likely to be more powerful and therefore they have fewer incentives to work in other stakeholders' interests. However, taking into account the common level of board ownership achieved in FTSE 350 companies and the active nature of the takeover market in UK, entrenchment may not occur unless higher levels of board ownership are achieved, so that the incentive effect is likely to dominate any entrenchment (Cosh et al, 2006). The takeover premium argument expects that management with more equity ownership would give them the power to oppose a takeover threat from the market for corporate control. Therefore, the raiders have to pay higher takeover premiums because of the entrenchment of management. Thus, the related hypothesis is:

H7: A positive association exists between the proportion of shares owned by directors and firm performance

4.5.8 Executive remuneration

Incentives contracts are certainly common in practice (Shleifer and Vishny (1997)). The large number of empirical studies on incentive contracts generally and in particular management ownership, report that a positive relationship exists between performance and pay, and therefore dismisses the extreme hypothesis of total separation of control and ownership. Denis and McConnell (2003) comment on the compensation issue that it is vital that from the perspective of corporate governance the amount to which executives' pay combines or aligns the interests of both shareholders and top executives. It is argued that for determining executive compensation, the pay-for performance methodology is a result of a definite assumption about the incentives and actions of executives in firms. The assumption is based on the argument that the agent and the principal are not truly aligned (McConvill, 2006). In order to find a solution for this non-alignment assumption, it is stated that managerial compensation plays a crucial role in mitigating agency cost (Florackis, Ozkan and Kostakis 2009).

Core et al. (2004) suggested that managers could be motivated to take decisions and apply actions that aim to maximize the wealth of the shareholders. Also, Murphy (1999) supports this view and concludes that compensation contracts can help the managers align their interest with the shareholders'. In the case where asymmetric information is absent, shareholders are directly capable of observing the actions of the managers and, thus, there is no need for incentive mechanisms to align shareholders' interest with those of managers. However, in practice, firms in a real life framework face stark asymmetric information and managerial agency costs, which eventually bring the need of both compensation and equity related incentives. It is proposed that with a rise in managerial compensation the managerial agency costs might be reduced such that managers would be satisfied and would be unlikely, ceteris paribus, to exert unsatisfactory effort, expropriate wealth and, in this manner, lead the risk of losing their jobs and ruining their careers. Jensen and Murphy (1990) and Mehran (1995), consistent with the previous view, found that there is a statistically strong relationship between corporate performance and managerial pay. In a similar view, Hutchinson and Gul (2004) reported that the negative association between growth opportunities and firm value is

moderated by managerial compensation, and Chen (2003) found that there is a strong association between annual stock bonuses and the firm's contemporaneous performance but did not find the same with future performance.

Within the empirical evidence, pay increasing with firm size is found to be the most consistent element on the determinant of CEO compensation (Jensen and Murphy, 1990). The level of director pay and the use of various forms of performance-based compensation packages are increasing with growth prospects and are lower in regulated industries (Smith and Watts, 1992), (Yermack, 1995), and (Kole, 1997). With growth prospects, it is required that the managers hold top skills and talent levels and there is a need for executives to be given incentives to make decisions on risky investment projects.

The pay slice given to CEOs of public companies in the US has been rising over the last decade and has an association with various governance variables, including CEO turnover and performance (Bebchuk, Cremers, and Peyer, 2007). The association is inversely related between the CEO's slice of total board pay and the company performance (measured by Tobin's Q), but the proportion of pay is positively associated to the CEO's entrenchment and an absence of a large outside shareholder (blockholder). This shows that when the performance is poor, dominant CEOs are common and the circumstances for entrenchment occur.

Main, Bruce and Buck (1996) studied the pay of the board in Britain for a sample of 70 companies from 1981 to 1989. They found a strong relationship between directors' remuneration and company performance. Others, such as Ezzamel and Watson (1997) did not find this relationship. They examined the process by which executive cash pay in large publicly listed U.K. companies is determined by isolating the influence of prior-period pay anomalies. The sample comprised all the listed companies in the 1992 Times 1,000, but after elimination they finally studied some 199 companies. The situation is cogently explained by Barkerma and Gomez-Mejia (1998) who stated: "*In short, after at least six decades of research ... the failure to identify a robust relationship between top management compensation and firm performance has led scholars into a blind alley".*

Ozkan (2007) studied the impact of corporate governance mechanisms on the level of CEO compensation. The sample chosen comprised of 414 large UK firms for the fiscal year of 2003 to 2004. The findings showed that both board and ownership structure explained the

variation in the total CEO compensation. CEOs are paid higher compensation in firms with larger board size and which have a higher percentage of non-executive directors. Conyon (1997) tested the influence of corporate governance innovations on the compensation of top directors. She studied the period between 1988 and 1993 for a sample of 213 large UK firms. Her findings showed that current shareholders return and directors' compensation are positively correlated. Also, there is evidence that top director pay is shaped by governance variables. Firms that embrace remuneration committees are perceived to not be causing higher growth rates in the compensation of top directors and the separation of the roles of the chairman and CEO seem to not be playing a role in the shaping of directors' pay.

Conyon and Leech (1994) studied the prediction of agency theory that CEO compensation is positively linked to corporate performance. They tested large UK listed companies between 1983 and 1986. They found a statistically significant positive relationship between executives' pay and company performance. In addition, they found that there is a mixed role played by corporate governance. Weir and Laing (2000) analysed to what extent governance structures influence performance. They studied large UK companies between 1994 and 1996 and found mixed results. But they found that the presence of a remuneration committee has a positive impact on firm performance. Rankin (2007) examined the relationship between firm performance and executive remuneration. Rankin studied 300 Australian companies in 2005 and found a link between executive remuneration and firm performance due to enhancement in corporate governance procedures.

Stathopoulus, Espenlaub and Walker (2005) studied the composition of the pay of the top executive directors. They use hand-collected data on the compensation for 698 CEO years and 2,609 other-executive years over the period 1995–2000. Their findings show that good performing companies are linked with executive remuneration, while worse performing companies have a weak link with executive remuneration. Gregg, Jewell and Tonks (2005) studied the relationship between executive cash compensation and company performance for a sample of large UK companies over the period from 1994 to 2002. They found the link between executive remuneration and company performance to be weak.

Eichholtz, Kok and Otten (2008) examined the drivers of executive compensation in the listed UK property sector. The final study sample comprised of 39 companies over the period 1998–2003, and a total of 217 observations. Their findings showed that company size is the

most crucial variable and that executive shareholdings offer a stronger link between performance and compensation. Conyon and Murphy (2000) studied the CEO pay and incentives in the UK and US. The analysis was based on 1997 fiscal-year data. The UK data is for the 510 largest companies (ranked by market capitalisation) and the fiscal 1997 US compensation and company data are extracted from Standard and Poor's (S&P's) Compustat's 'ExecuComp' database, which includes proxy-statement data for 1,666 top executives in the S&P 500, the S&P Mid-Cap 400, the S&P Small-Cap 600, and other supplemental S&P indices. After controlling for size, sector and other firm and executive characteristics, they found that CEOs in the US earn 45% higher cash compensation and 190% higher total compensation.

Crespi-Clader and Gispert (2003) examined the relationship between performance and board remuneration of selected large public Spanish firms for the period of 1990 to 1995. Their findings showed that there is a positive relationship between company performance and board remuneration, which is weaker for stock markets measures but stronger for book values. Firth et al (2007) studied whether the firm's performance has an impact on the CEO's pay in Chinese public companies. The findings show that there is a positive relationship between the CEO's pay and performance when it is measured by return on assets (ROA). Therefore, when there are good operating profits firms reward their CEOs with higher pay. Also, Kato and Long (2005) studied Chinese listed firms and provided evidence on the positive relationship between executive compensation and firm performance. They collected a broad accounting and financial data set of Chinese listed firms for the period of 1998 to 2002. They found statistically significant sensitivities, and of annual cash compensation for top executives. Additionally, they found that executive compensation and sales growth are significantly linked. Furthermore, the ownership structure of Chinese listed companies has a significant impact on the relationship between pay and performance for these firms. Consequently the following hypothesis is proposed:

H8: A positive relationship exists between directors' remuneration and firm performance.

4.6 Analysis of the data

The Statistical Package for the Social Sciences (SPSS) was used to process the gathered quantitative data mainly from Bloomberg and annual reports; more details about these analyses are discussed and explained in the following sections.

4.6.1 Quantitative data (Bloomberg and Annual report)

4.6.1.1 Appropriateness of regression

This study uses regression analysis. Taking into account that all the previous studies have focused on the OLS regression, OLS regression is thus chosen to be used in this study. Generally, in social science OLS is considered a common language for regression analysis, thus showing and interpreting the OLS results means that all the studies are using the same language. Furthermore, Stock and Watson (2003) point out those OLS formulas are built into statistical software which means they can be used easily.

Before conducting the analysis, several tests were used to assess the data compatibility for the classical linear regression model assumptions (CLRM), as suggested by Brooks (2002):

2 No relationship exists between independent variables.
3 The relationship between dependent and independent variables is linear.
4 The error is assumed to be normally distributed and errors have zero mean.
5 The variance of the errors is constant over all values of *xt*.
6 The errors are statistically independent of one another.

This study tested the assumptions of multicollinearity, normality, linearity, homoscedasticity, outliers, and autocorrelation; if any of these conditions exist in the regression, it may indicate that:

2 The OLS estimates are no longer BLUE and will be inefficient (The OLS regression is best linear unbiased estimators (BLUE). This means that OLS estimators are the best (B in BLUE), unbiased (U in BLUE), linear (L in BLUE), and estimators (E in BLUE).
3 The estimated variances coefficients will be biased and inconsistent.
4 Tests of hypothesis are invalid.

Few extreme observations commonly influence the estimates of regression parameters. In most samplings of data, it is found that some data points will be further away from the sample mean than would be expected from the properties of commonly used statistical distributions. This can be due to systematic error or it can simply be the case that some observations happen to be a long way from the centre of the data. Outlier points can therefore indicate

faulty data or the existence of effects not covered by the theory under consideration. However, a small number of outliers are to be expected in the usual pattern of a distribution. OLS assumptions and outlier tests for assessing data for the regression were conducted. In this research, outliers were inspected to eliminate gross data errors. Outliers were examined through the use of box plots as well as measures of the mean and standard deviation. All outliers found with respect to the variables needed to be removed from each analysis in order to ensure that the assumption of linearity was not violated, and that no influential outliers remained in the analysis. As a rule of thumb, measures that were three standard deviations above or below the mean or more extreme were considered outliers and need be removed from the analysis. Regression analysis was applied in different manners, with and without outliers and after Winsorising of the data; the results indicated an improvement in the overall model without after Winsorising by replacing the outliers with the mean plus (or minus) three standard deviations. The study's overall *F*-value and R^2 increased comparing to the results using different methods. All these previous econometrics problems discussed with testing and treatment are presented in the following table (table 3.7). More details about these techniques are used when any problems found will be provided and discussed in the next chapter.

Table 4.7 Appropriateness Tests for the data, Definitions and conditions, and Detecting Procedures

The problem	Definition	Detecting test
Multicollinearity	Multicollinearity occurs in the model if the independent variables are related to one another (more than 80%)	The Pearson correlation matrix
Normality	The relationship between dependent and independent variables should follow a normal distribution	The data are normal if standard skewness is within ±1.96 and standard kurtosis within ±3.
Linearity	The relationship between dependent and independent variables must be linear	Standardised residuals as a function of standardised predicted values, the histogram, and normal plot of regression standardised residuals for dependent variables
Heteroskedasticity	If errors have a constant variance, they are homoscedastic; otherwise, they are heteroscedastic	
Autocorrelation	This problem occurs in the model if the error terms of the models for consecutive observations are related to one another	
Outliers	Data that have a standard deviation of more than ±3	These outliers are removed from the data to determine if any difference exists in the R^2 in the results.

4.6.2 Analytical procedures

After completion, all the appropriateness tests for the data compatibility for regression are built into the model for this study; the relationship between firm performance and corporate governance mechanisms was examined using data of 363 listed firms for the period 2005 to 2010. Several studies in the literature such as Agrawal and Knoeber (1995), Brick et al. (2006), Silveira and Barros (2007), Omran et al. (2008) and Jaafar and El-Shawa (2009) used the regression model where performance measures are the dependent variables and the corporate governance mechanisms are the independent variables, thus consistent with these studies this thesis used the following regressions:

Firstly, OLS regressions where the performance measures (Tobin's Q and ROA) are considered as dependent variables and the internal governance mechanisms and control variables are considered as independent variables, both individually (bivariate) and jointly (multivariate). Secondly, as discussed in the literature review, endogeneity and causality might exist between firm performance and corporate governance mechanisms. Therefore, when such problems are found it means the OLS estimates in the main model will be inconsistent and biased. Thus, 2SLS regressions and instrument variables methods are used to deal with such problems.

4.7 Summary

In this chapter, the study objectives and research questions are presented, the research paradigm is considered and the research method used is described (mainly a quantitative method (archival data from Bloomberg and annual reports of listed firms)), sample selections and all the dependent and independent variables with the control variables are introduced, research hypotheses are presented and data analysis techniques with the analytical procedures are explained. The next chapter will analyse the research findings and present the discussion of the results from quantitative data (Bloomberg and annual report data).

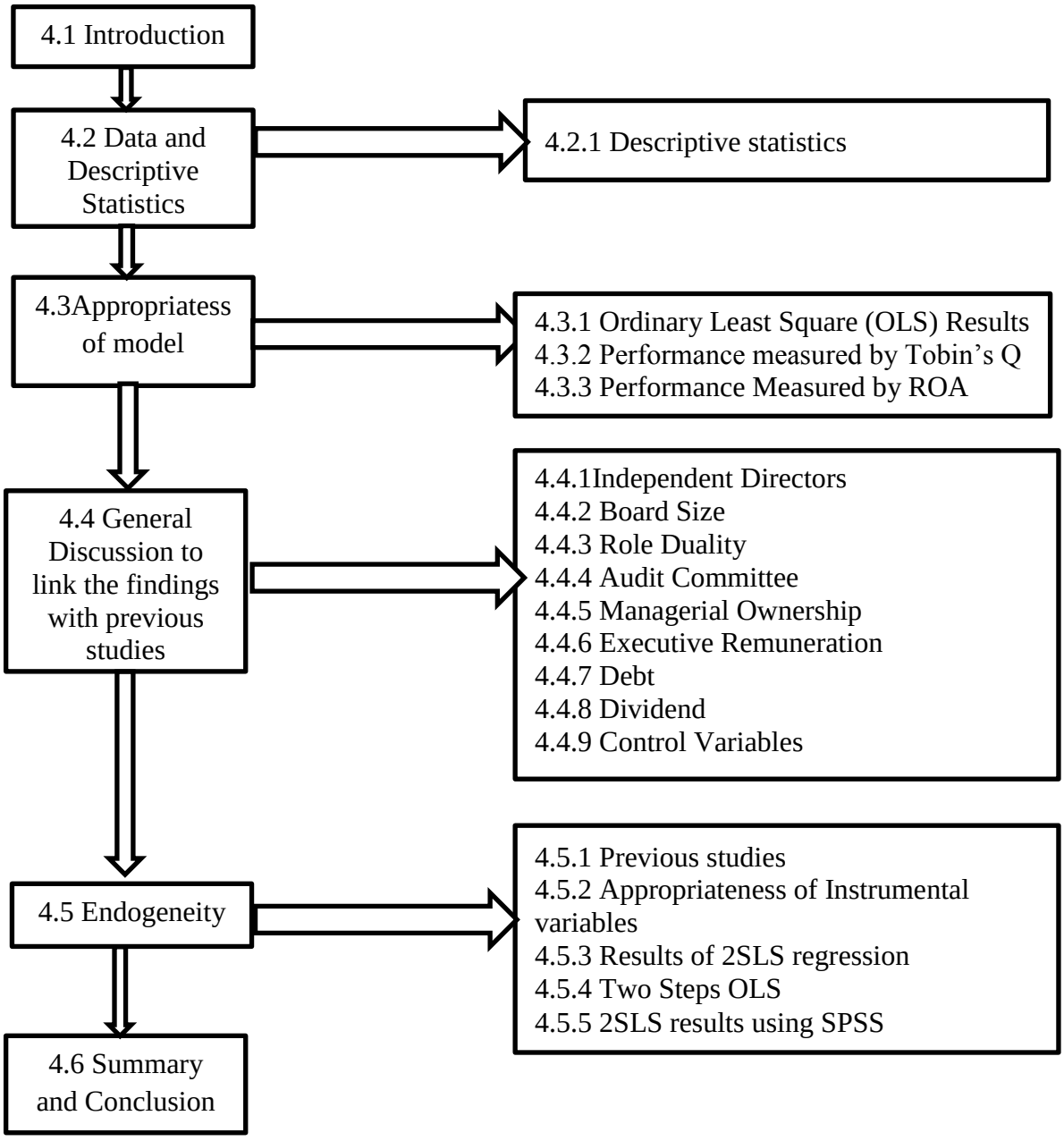


Figure 5 Diagram of Chapter four

5 Chapter Four: Results and Discussion

5.1 Introduction

This chapter presents and discusses the results of the analyses conducted for this study using the quantitative data (extracted from Bloomberg and Annual Reports). Firstly, it provides a test for assumptions of regression analysis. This consists of an initial series of descriptive statistics; it then presents the results of hypothesis testing regarding the relationship between corporate governance mechanisms and firm performance. These results are based on the ordinary least square (OLS) for market and accounting measures. Finally, Durbin–Wu–Hausman tests of endogeneity are considered, followed by a summary of the study.

5.2 Data and Descriptive Statistics

Initially, a series of descriptive statistics these were conducted on these data in order to present an indication of these measures and their distribution. First, the following two tables 4.1 and 4.4 summarize descriptive statistics conducted on both outcomes as well as all predictors separately for each year from 2005 through 2010, before and after transformation for normality. The descriptive reported consist of the mean, standard deviation, skewness and kurtosis, as well as minimum and maximum data points. As indicated in the following table, very substantial non-normality was found with respect to these figures along with the presence of substantial outliers. As discussed later in this chapter, these outcomes were first normalized along with all outliers being removed before conducting the multivariate analyses included in this study.

Table 5.1 Descriptive Statistics table before transformation for normality

Variables		***2005***	***2006***	***2007***	***2008***	***2009***	***2010***
Tobin's Q	N=	325	342	358	358	352	335
	Mean	2.220	2.438	1.925	1.345	1.600	1.714
	ST	2.915	3.616	1.287	0.787	0.989	1.266
	Min	0.839	0.850	0.558	0.431	0.512	0.533
	Max	45.442	60.847	18.845	10.648	12.104	18.069
	Skewness	11.670	13.191	6.992	5.787	5.116	7.345
	Kurtosis	159.876	204.203	83.687	57.637	43.302	85.148
ROA	N=	331	341	354	357	351	338
	Mean	7.194	7.293	8.372	4.546	4.124	5.330
	ST	10.899	10.251	10.913	12.163	7.798	13.446
	Min	-38.172	-52.018	-60.236	-68.185	-37.251	-122.912
	Max	88.701	66.173	72.034	70.247	58.533	111.024
	Skewness	1.166	-0.657	0.435	-0.528	0.116	-1.633
	Kurtosis	13.523	9.744	12.240	10.059	9.768	39.919
BSIZE	N=	335	347	363	363	358	345
	Mean	8.540	8.611	8.587	8.647	8.439	8.351
	ST	2.563	2.574	2.425	2.394	2.279	2.463
	Min	2.000	4.000	4.000	4.000	4.000	0.000
	Max	19.000	18.000	19.000	19.000	17.000	17.000
	Skewness	0.768	0.836	0.942	0.973	1.076	0.803
	Kurtosis	0.909	0.580	1.179	1.253	1.348	2.204
AUD	N=	328	342	355	359	360	357
	Mean	0.982	0.985	0.992	0.997	0.986	0.947
	ST	0.134	0.120	0.092	0.053	0.117	0.225
	Min	0.000	0.000	0.000	0.000	0.000	0.000
	Max	1.000	1.000	1.000	1.000	1.000	1.000

	Skewness	1.299	2.166	2.180	2.586	2.205	1.565
	Kurtosis	5.244	9.687	11.029	12.222	12.012	10.065
ROLE	N=	331	343	358	360	360	356
	Mean	0.054	0.047	0.031	0.042	0.033	0.034
	ST	0.227	0.211	0.173	0.200	0.180	0.181
	Min	0.000	0.000	0.000	0.000	0.000	0.000
	Max	1.000	1.000	1.000	1.000	1.000	1.000
	Skewness	3.948	4.318	5.461	4.607	5.221	5.189
	Kurtosis	13.670	16.747	27.983	19.327	25.403	25.069
INDPDIR	N=	335	347	363	363	358	343
	Mean	48.678	49.639	51.134	51.899	52.399	51.765
	ST	14.279	12.220	12.656	12.846	12.690	14.644
	Min	10.526	11.111	10.526	10.000	11.111	0.000
	Max	150.000	100.000	100.000	100.000	100.000	100.000
	Skewness	1.254	0.562	0.239	0.067	0.081	0.048
	Kurtosis	7.583	1.734	0.972	0.850	0.608	1.322
DIROWNR	N=	336	350	361	362	355	339
	Mean	5.481	5.491	5.499	5.607	5.343	5.478
	ST	12.712	12.688	12.178	12.103	11.659	12.546
	Min	0.000	0.001	0.000	0.001	0.002	0.004
	Max	88.030	87.880	72.798	64.404	64.468	88.844
	Skewness	3.612	3.536	3.087	2.933	2.922	3.275
	Kurtosis	14.870	13.534	9.633	8.425	8.477	11.980
DIRREMN	N=	321	345	356	355	351	336
	Mean	0.010	0.007	0.006	0.005	0.005	0.005
	ST	0.062	0.013	0.015	0.010	0.008	0.007
	Min	0.000	0.000	0.000	0.000	0.000	0.000
	Max	1.097	0.143	0.248	0.163	0.129	0.085

	Skewness	17.090	6.447	12.488	10.848	10.069	6.237
	Kurtosis	300.279	54.875	191.711	159.179	139.433	55.775
DEBT	N=	339	353	359	357	354	343
	Mean	21.319	21.628	22.062	23.904	22.749	20.794
	ST	18.806	19.541	18.044	18.413	18.112	16.970
	Min	0.000	0.000	0.000	0.000	0.000	0.000
	Max	104.843	133.094	113.912	113.116	106.910	85.395
	Skewness	1.204	1.571	0.985	0.803	0.791	0.850
	Kurtosis	1.994	4.542	1.787	1.113	0.741	0.603
FSIZE	N=	339	353	358	356	355	344
	Mean	3709.635	3571.874	4013.844	5147.912	5210.194	5816.120
	ST	14707.503	13379.732	14152.251	19116.759	18919.016	21635.058
	Min	4.828	19.007	22.341	23.524	21.832	17.458
	Max	147197.000	126738.000	135910.627	193757.118	180939.435	206888.590
	Skewness	7.906	7.786	7.468	7.779	7.323	7.344
	Kurtosis	66.777	65.428	61.787	67.734	59.761	59.884
DPOUT	N=	322	340	350	350	346	328
	Mean	0.647	0.691	1.285	1.097	0.425	0.353
	ST	3.159	4.157	13.436	10.138	4.419	2.214
	Min	-16.106	-11.000	-5.700	-5.067	-33.214	-35.846
	Max	46.688	58.383	244.963	147.000	55.000	9.319
	Skewness	10.452	11.297	17.354	13.240	5.258	-12.902
	Kurtosis	150.266	143.592	312.875	177.204	86.652	221.405

Dependent variables include: Tobin's Q—and ROA (Return on Assets). Independent variables include DIRW: directors' ownership; INDEP: percentage of independent directors to total number of directors; EXCREM: executive remunerations, BSIZE: board size; AUD: Audit Committee; ROLE: role duality; DEBT: total debt divided by assets; DPOUT: dividend payout; FSIZE: firm size measured by total assets; SD: Standard deviation; Min and Max: the minimum and maximum value.

Table 5.2 Descriptive statistics table after transformation for normality

Variables		***2005***	***2006***	***2007***	***2008***	***2009***	***2010***
Tobin's Q	N=	322	339	357	357	351	334
	Mean	1.981	2.173	1.876	1.319	1.570	1.663
	ST	0.892	1.145	0.926	0.614	0.816	0.895
	Min	0.839	0.850	0.558	0.431	0.512	0.533
	Max	6.212	8.542	5.747	5.917	8.418	7.575
	Skewness	1.981	2.561	1.770	2.529	3.116	2.558
	Kurtosis	4.703	8.693	3.704	11.263	17.921	10.176
ROA	N=	331	341	354	357	351	338
	Mean	7.194	7.293	8.372	4.546	4.124	5.330
	ST	10.899	10.251	10.913	12.163	7.798	13.446
	Min	-38.172	-52.018	-60.236	-68.185	-37.251	-122.912
	Max	88.701	66.173	72.034	70.247	58.533	111.024
	Skewness	1.166	-0.657	0.435	-0.528	0.116	-1.633
	Kurtosis	13.523	9.744	12.240	10.059	9.768	39.919
BSIZE	N=	335	347	363	363	358	345
	Mean	8.540	8.611	8.587	8.647	8.439	8.351
	ST	2.563	2.574	2.425	2.394	2.279	2.463
	Min	2.000	4.000	4.000	4.000	4.000	0.000
	Max	19.000	18.000	19.000	19.000	17.000	17.000
	Skewness	0.768	0.836	0.942	0.973	1.076	0.803
	Kurtosis	0.909	0.580	1.179	1.253	1.348	2.204
AUD	N=	328	342	355	359	360	357
	Mean	0.982	0.985	0.992	0.997	0.986	0.947
	ST	0.134	0.120	0.092	0.053	0.117	0.225

	Min	0.000	0.000	0.000	0.000	0.000	0.000
	Max	1.000	1.000	1.000	1.000	1.000	1.000
	Skewness	-7.222	-8.124	-10.785	-18.947	-8.342	-5.738
	Kurtosis	50.470	74.370	114.972	359.000	67.971	14.059
ROLE	N=	331	343	358	360	360	356
	Mean	0.054	0.047	0.031	0.042	0.033	0.034
	ST	0.227	0.211	0.173	0.200	0.180	0.181
	Min	0.000	0.000	0.000	0.000	0.000	0.000
	Max	1.000	1.000	1.000	1.000	1.000	1.000
	Skewness	3.948	4.318	5.461	4.607	5.221	5.189
	Kurtosis	13.670	16.747	27.983	19.327	25.403	25.069
INDPDIR	N=	335	347	363	363	358	343
	Mean	48.678	49.639	51.134	51.899	52.399	51.765
	ST	14.279	12.220	12.656	12.846	12.690	14.644
	Min	10.526	11.111	10.526	10.000	11.111	0.000
	Max	150.000	100.000	100.000	100.000	100.000	100.000
	Skewness	1.254	0.562	0.239	0.067	0.081	0.048
	Kurtosis	7.583	1.734	0.972	0.850	0.608	1.322
DIROWNR	N=	336	350	361	362	355	339
	Mean	5.481	5.491	5.499	5.607	5.343	5.478
	ST	12.712	12.688	12.178	12.103	11.659	12.546
	Min	0.000	0.001	0.000	0.001	0.002	0.004
	Max	88.030	87.880	72.798	64.404	64.468	88.844
	Skewness	3.612	3.536	3.087	2.933	2.922	3.275
	Kurtosis	14.870	13.534	9.633	8.425	8.477	11.980
DIRREMN	N=	321	345	356	355	351	336
	Mean	0.010	0.007	0.006	0.005	0.005	0.005
	ST	0.062	0.013	0.015	0.010	0.008	0.007
	Min	0.000	0.000	0.000	0.000	0.000	0.000
	Max	1.097	0.143	0.248	0.163	0.129	0.085
	Skewness	17.090	6.447	12.488	10.848	10.069	6.237

	Kurtosis	300.279	54.875	191.711	159.179	139.433	55.775
DEBT	N=	339	353	359	357	354	343
	Mean	21.319	21.628	22.062	23.904	22.749	20.794
	ST	18.806	19.541	18.044	18.413	18.112	16.970
	Min	0.000	0.000	0.000	0.000	0.000	0.000
	Max	104.843	133.094	113.912	113.116	106.910	85.395
	Skewness	1.204	1.571	0.985	0.803	0.791	0.850
	Kurtosis	1.994	4.542	1.787	1.113	0.741	0.603
FSIZE	N=	339	353	358	356	355	344
	Mean	3709.635	3571.874	4013.844	5147.912	5210.194	5816.120
	ST	14707.503	13379.732	14152.251	19116.759	18919.016	21635.058
	Min	4.828	19.007	22.341	23.524	21.832	17.458
	Max	147197.000	126738.000	135910.627	193757.118	180939.435	206888.590
	Skewness	7.906	7.786	7.468	7.779	7.323	7.344
	Kurtosis	66.777	65.428	61.787	67.734	59.761	59.884
DPOUT	N=	322	340	350	350	346	328
	Mean	0.647	0.691	1.285	1.097	0.425	0.353
	ST	3.159	4.157	13.436	10.138	4.419	2.214
	Min	-16.106	-11.000	-5.700	-5.067	-33.214	-35.846
	Max	46.688	58.383	244.963	147.000	55.000	9.319
	Skewness	10.452	11.297	17.354	13.240	5.258	-12.902
	Kurtosis	150.266	143.592	312.875	177.204	86.652	221.405

Dependent variables include: Tobin's Q—and ROA (Return on Assets). Independent variables include DIRW: directors' ownership; INDEP: percentage of independent directors to total number of directors; EXCREM: executive remunerations, BSIZE: board size; AUD: Audit Committee; ROLE: role duality; DEBT: total debt divided by assets; DPOUT: dividend payout; FSIZE: firm size measured by total assets; SD: Standard deviation; Min and Max: the minimum and maximum value.

The sample in the current study comprised 363 non-financial firms in the FTSE All share index. The data sample was collected for six years from 2005 to 2010. Two performance measures were used in this study Tobin's Q and ROA where a higher value indicates that the level of performance is high. Firstly a discussion of the dependent variables, the mean of Tobin's Q for the all observations is 1.85, the minimum is 0 and maximum is 61. Abdullah (2007) studied large pubic listed companies in UK and found that Tobin' s Q ranged from 1.5 to 3.35 for large listed companies, thus the argument that firms in developed countries generate more value for shareholders and markets. With regards to ROA, the mean ROA is 6.14%, ranging from a minimum of -123% to a maximum of 111%, thus it shows similar trends. Secondly the independent variables, the mean value for the directors' ownership is 5.48%. The mean board size of the sample is 8.53, in the UK, the mean board size dropped from 10 to 9 from 1999 to 2004 (Abdullah, 2007).Weir and Laing (2001) found that the average of board size is 10.7 members. But Vafeas and Theodorou (1998) found a mean board size of 8.07. However, Bhagat and Block (2002) found that the mean size in the United States is 11.45 which indicate that firms in the US have larger board size than the firms in the UK.

In terms of board composition, the mean percentage of Independent directors (INDEP) on boards is 50.9 per cent, suggesting that independent directors make up half of the boards in the sample selected. However, Weir & Laing, (2001) found that in the United Kingdom, the mean for the proportion of NEDs was about 47 per cent. In the United States, this percentage has been found to be 60 per cent (Bhagat & Black, 2002) and 78 per cent (Coles et al., 2008).The mean of companies with role duality (share role of chair and CEO) is 4 per cent which confirms that the great majority of companies complied with the recommendations in the governance reports. But Vafeas and Theodorou (1998) found that role duality in the United Kingdom averaged 66 per cent in 1994. However, O'Sullivan (2000) and Weir and Laing (2001) found it to be 15 per cent in 1995 and 17 per cent from 1995 to 1996, respectively. Such data supports studies that have found reduced rates of role duality following the Cadbury recommendation in the United Kingdom. Kiel and Nicholson (2003) found that role duality among Australian firms was approximately 23 per cent; The mean for the debt ratio is 22.09 per cent, which is much less than that found by Al-Anezy (2006) this is because he used different measurements to define the debt for total debt/total shareholders' equity; the mean dividend pay-out is about 75 per cent, the mean for the executive

remuneration is 0.6 per cent while the mean for Audit committee is 3.71per cent and firm size was measured based on total assets.

Next, the following table 4.3 summarizes the categorical measures included in this study, which consisted of a measure relating to industry of the company, as well as CEO duality, which was dichotomous. These results indicate that slightly above 30% of cases were industrials, with close to 30% being within the consumer services industry. Additionally, CEO duality was found to be rare, occurring in only approximately 3% to 6% of cases.

Table 5.3 Descriptive Statistics: Categorical Variable

Measure	**N**	**%**
Industry		
Basic Materials	23	6.3
Cons. Goods	38	10.5
Cons. Service	103	28.4
Health Care	19	5.2
Industrials	111	30.6
Oil & Gas	20	5.5
Technology	38	10.5
Utilities	11	3
Total	363	100
CEO Duality		
2005	18	5.4
2006	16	4.7
2007	11	3.1
2008	15	4.2
2009	12	3.3
2010	12	3.4

5.3 Appropriateness of models

The analysis of the data related to skewness and kurtosis (see Table 4.1) suggests that the dependent variables are not normally distributed in the current study. In addition, scatter plots of residuals against predicted values, histogram, and normal plot of regression-standardised residuals for dependent variables indicated that the multicollinearity, normality, outliers, and heteroskedasticity need to be tested before conducting the analysis. The data set was analysed

for its appropriateness based on the assumptions of multi-regression, as suggested by Brooks (2002).

Diagnostics were also conducted on all 12 OLS regressions in order to ensure a lack of multicollinearity, and heteroscedasticity, as well as the presence of normally distributed residuals, linearity, and the lack of outliers**.** Multicollinearity was not found to be present in these analyses due to all tolerances being below 0.20 and all variance inflation factors being below 5. Appendix Ch. 3.1 and Ch. 3.2 show the tables for multicollinearity test. Appendix Ch. 3.3 and 3.4 shows the figures for Homoscedasticity test. Homoscedasticity was verified in all analyses through the construction of scatterplots of the regression standardized residuals and regression standardized predicted values. Also Appendix CH. 3.5 and 3.6 shows the Histograms of the residual errors as well as probability-probability plots were also constructed in order to ensure the normality of these residual errors, which was found to be the case in these analyses. Furthermore, as mentioned in the previous chapter, multicollinearity may be a problem if the correlation between two independent variables exceeds 80 percent (Gujarati, 1999). In the current study, the presence of multicollinearity was tested using the Pearson correlation matrix to confirm whether significant collinearity exists across the independent variables of the study. The highest correlation existed between independent directors and board size (29.9 percent); otherwise, no correlation was found to impact the regression results. Appendix Ch. 4.1 shows the tables for correlation between explanatory variables.

Initially, diagnostics were conducted in order to determine the distribution of these outcomes, which consisted of measures of skewness and kurtosis, histograms, and one-sample Kolmogorov-Smirnov tests. As these measures were found to be significantly and substantially non-normal, the Johnson family of distributions was applied to these data in order to produce more normally distributed measures. Johnson's distributions incorporate a series of functions which are used in order to transform a variable into a normally distributed measure (Hill, Hill, & Holder, 1976; Johnson, 1949; see also Hoyle, 1973; Polansky, Chou, & Mason, 1999). Out of these four functions, a single function is chosen based upon the distribution of the measure being transformed. The following series of equations are applied to the data during this process. In all cases, z is distributed $N(0,1)$ (Hill, Hill, & Holder, 1976; Johnson, 1949).

$y = (x - x_i)$ / lambda

where x is the original measure.

SN (Normal distribution)

$z = y$

SL (Log-normal distribution)

$z = \text{gamma} + \text{delta} * \ln(y)$

SU (Unbounded distribution)

$z = \text{gamma} + \text{delta} * \text{asinh}(y)$

SB (Bounded distribution)

$z = \text{gamma} + \text{delta} * \ln(y / (1 - y))$

In the initial SN case, no transformation is made as the variable in question is already normally distributed (Hill, Hill, & Holder, 1976; Johnson, 1949). The SL case is used among measures that are bounded only on one side. When using this distribution, the parameter x_i represents the value of the bound, whereas lambda is either equal to one, representing positive skew, or is equal to -1, representing negative skew. The SU case is used to transform a measure with an unbounded distribution, whereas the SB case is used for variables having distributions which are bounded on both ends. In this final case, x_i is slightly below the minimum of the untransformed variable, while lambda is calculated such that lambda - x_i is slightly above the maximum of the untransformed variable (Hill, Hill, & Holder, 1976; Johnson, 1949).

Following the completion of these transformations, outliers were examined through the use of box plots as well as measures of the mean and standard deviation. All outliers found with respect to the variables included in these analyses were removed from each analysis in order to ensure that the assumption of linearity was not violated, and that no influential outliers remained in this analysis. As a rule of thumb, measures that were three standard deviations above or below the mean or more extreme were considered outliers and were removed from these analyses. Homoscedasticity was verified in all analyses through the construction of scatterplots of the regression standardized residuals and regression standardized predicted values. As these scatterplots all displayed a diffuse cloud of data with no distinct pattern, this

indicates that the assumption of homoscedasticity was not violated in these regression analyses. Histograms of the residual errors as well as probability-probability plots were also constructed in order to ensure the normality of these residual errors, which was found to be the case in these analyses. The assumptions of linearity and the lack of outliers were both verified through the use of partial regression plots which were constructed for each predictor included in each regression analysis. These plots indicated that linearity was present, and furthermore that no influential outliers were present in these analyses.

5.3.1 Ordinary least square (OLS) results

In this section, results from ordinary least square regressions (OLS) will be discussed. The following simple linear regression has been used to examine the relationship between firm performance and its governance structure.

Firm performance =f (board independence, board size, audit, CEO duality, managerial ownership, executive remunerations, debt, dividend payout, log firm size, and industry control) (1)

That is,

$$Performance=\alpha+\beta_1 INDEP + \beta_2 BSIZE+ \beta_3 AUD+\beta_4 ROLE+\beta_5 DIRW+\beta_6 EXCREM+\beta_7 DEBT +\beta_8 DPout +B_9 FSIZE + \beta_{10} INDUS + \varepsilon \quad (2)$$

Firm performance is measured alternatively using Tobin's Q and Return on Assets. Board size, board independence, audit and CEO duality are used as dimensions of board structure. The results of the study are depicted in the Tables 4.3 and 4.3 showing the overall results on the full sample; 2005, 2006, 2007, 2008, 2009 and 2010. In performing the analysis, three performance measures have been used; Tobin's Q and ROA. For clarity, the sign of coefficients and significance together with R^2, an adjusted R^2 and F statistics are reported in the tables.

A series of 12 OLS regressions were conducted in order to test this study's hypotheses, which focused upon whether a series of predictors significantly relate to Tobin's Q as well as Return on Assets. These 12 regressions are based on testing the relationship between Firm

performance measured by Tobins' Q and ROA for each year across the six year period from 2005 to 2010. The regression equation utilized in these analyses took the following form:

$$PERM = \alpha + \beta_1 DIRW + \beta_2 INDEP + \beta_3 BSIZE + \beta_4 EXCREM + \beta_5 ROLE + \beta_6 DEBT + \beta_7 DPout + \beta_8 AUD + \beta_9 INDUS + B_{10} FSIZE + \varepsilon$$

Where:

α = Intercept

PERM = Tobin's Q and ROA (normalized scores)

DIRW= Director's ownership percentage

INDEP= Percentage of independent directors

BSIZE = Board size, number of directors on board

EXCREM = Natural logarithm of total board remuneration (both remuneration executive and non-executive);

ROLE= Role duality, dummy variable where 1 if the chairman is also the CEO, 0 otherwise

DEBT = Debt ratio, Total debt/total assets

DPout = Dividend payout, Dividend per share/earnings per share

AUD = Number of Audit Committee Members, dummy variable where 1 if there is an audit committee on board, 0 otherwise

INDUS = Seven Dummy variables for eight industry sectors

FSIZE = Firm size, the natural logarithm of total assets

ε = Random error term

The hypotheses included in this study consist of the following, and are tested through the use of the regression analyses:

H1: A positive relationship exists between directors' ownership and firm performance.

H2: A positive relationship exists between Executive remuneration and firm performance.

H3: A negative relationship exists between board size and firm performance.

H4: A positive relationship exists between firm performance and the proportion of independent directors.

H5: A positive relationship exists between firm performance and Audit Committee.

H6: A negative relationship exists between role duality and firm performance.

H7: Firms with a higher level of debt have a higher level of performance.

H8: A positive relationship exists between firm performance and dividend payout.

5.3.2 Performance measured by Q

Tobin's Q overall results are presented in the following table 4.4. The relationship between Tobin's Q and board independence is positive, and it is significant for the whole sample period (2005 to 2010) with (10%) for 2005, 2006 and 2009, with (5%) for 2008 and 2010 and with (1%) for 2007. The association between board size and firm performance is positive across the six years apart from 2006 and significant only for 2005 and 2007 with (10%). There is a positive association between CEO duality with firm performance across the six years, which is significant at 5% for the year 2005 and at 10% for 2006 and 2007. There is a negative association between audit with Tobin's Q across the whole sample period (2005 to 2010) apart from 2007 and 2010 which have a positive coefficient sign, but is only significant for the year 2005 with 10%. There is a positive association between managerial ownership and firm performance for the whole sample period apart from 2008, which has a negative coefficient sign, but is only statistically significant for 2005 and 2007 at 10%. Executive remuneration is found to be statistically positively related to Q. There is a positive association with firm performance for all the sample period (2005 to 2010) apart from 2005 which has a negative coefficient sign, but it is only significant at 10% for the year 2008. There is a negative association between dividend and firm performance for the years 2005, 2007 and 2008, while for the years 2006, 2009 and 2010 there is a positive association. There is a negative significant association between firm size and Q for the whole sample period.

Table 5.4 OLS Regression of Tobin's Q on Governance and Control Variables

The dependent variable is measured by Tobin‘s Q, which is measured by (Market Cap + Liabilities + Preferred Equity + Minority Interest) / Total Assets. The independent variables include DIRW: Director ownership= the total shareholdings of directors over the total number of shares, INDEP: Independent directors= Proportion of non-executive directors to total number of directors; BSIZE: board size = Total number of directors on the board; AUD: Audit Committee = Dummy variable; 1 if there is an audit committee,0 otherwise; ROLE: role duality = Dummy variable—1 if the chairman is also the CEO, 0 otherwise; EXCREM: Executive Remuneration= Natural logarithm of total board remuneration(both remuneration executive and non-executive); DEBT: total debt = Total debt /total assets; DPOUT: dividend payout = Dividend per share/earnings per share; FSIZE: firm size = the natural logarithm of total assets. All OLS regression includes seven dummy variables for each of the eight industries based on Industry Classification Benchmark (ICB)

Model	**Dependent variables Tobin’s Q**					
Year	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Observation	**273**	**306**	**337**	**335**	**326**	**306**
Constant	-5.682***	-8.078***	-6.033***	-5.542**	-6.449**	-4.542**
INDEP	0.011*	0.009*	0.016***	0.014**	0.01*	0.012**
BSIZE	0.049*	-0.005	0.07*	0.052	0.038	0.051
ROLE	0.754**	0.452*	0.494*	0.257	0.321	0.286
AUD	-0.623*	-0.207	0.224	-0.827	-0.482	0.013
DIRW	0.01*	0.002	0.008*	-0.004	0.006	0.006
LGEXCREM	0.556***	0.687***	0.44***	0.49***	0.514***	0.335**
DEBT	-0.003	0	0.004	0.005*	0.002	0.002
DPOUT	-0.032	0.018	-0.007	-0.003	0.018	0.036
LGFSIZE	-0.384***	-0.367***	-0.334***	-0.289***	-0.206**	-0.138**
Industry: Cons. Goods	-0.262	0.294	0.229	-0.041	0.053	0.176
Industry: Cons. Serv.	0.013	0.134	0.184	0.076	0.087	-0.227
Industry: Health Care	-0.254	0.007	0.021	-0.152	-0.251	-0.262
Industry: Industrials	-0.344	0.161	0.27	0.026	0.061	-0.154
Industry: Oil & Gas	-0.306	0.015	0.047	-0.113	-0.053	-0.152
Industry: Technology	-0.542	-0.022	-0.119	-0.232	-0.224	-0.134
Industry: Utilities	-0.092	0.215	0.049	-0.212	-0.235	-0.297
R-sq	0.282	0.141	0.137	0.111	0.082	0.084
Adj. R-sq	0.237	0.228	0.09	0.066	0.035	0.034
F	6.308***	5.354***	3.862***	2.48***	1.732**	1.664*

The excluded dummy variable for industry classification is basic materials

*** Significant at the 1% level **Significant at the 5% level *Significant at the 10% level.

5.3.3 Performance measured by ROA

ROA overall results are presented in the following table 4.5. The percentage of independent directors is again positive across the whole sample period (2005 to 2010) apart from 2010 which has a negative coefficient sign, but is only significant for the year 2008 at 5%. A negative association is observed for all the sample period from 2005 to 2010 between ROA and board size, but is significant only for 2007 at 5%. There is a positive association between CEO duality with ROA across the six years apart from 2006 which shows a negative association. The association between managerial ownership and ROA is positive across the whole sample period (2005 to 2010), but is only statistically significant for the years 2006, 2007 and 2008 with 10%. Executive remuneration is found to be statistically positively related to ROA. The association between debt and ROA is negative across all years from 2005 to 2010, which is significant only for the years 2005, 2009 and 2010 at 10%, 5% and 1% respectively. There is a negative association for three years (2007 and 2008 and 2010), while there is a positive association for the years 2005 2006 and 2009, which is only significant for 2009 at 10%. There is a negative association between firm size and ROA for the entire sample period which is only significant at 10% for the years 2005, 2006, 2007 and 2008.

Table 5.5 OLS regression of ROA on Governance and Control Variables

The dependent variable is measured by Return on Assets (ROA) = Earnings before interest and taxes over total assets for each year. The independent variables include DIRW: Director ownership= the total shareholdings of directors over the total number of shares, INDEP: Independent directors= Proportion of non-executive directors to total number of directors; BSIZE: board size = Total number of directors on the board; AUD: Audit Committee = Dummy variable; 1 if there is an audit committee,0 otherwise; ROLE: role duality = Dummy variable—1 if the chairman is also the CEO, 0 otherwise; EXCREM: Executive Remuneration= Natural logarithm of total board remuneration(both remuneration executive and non-executive);; DEBT: total debt = Total debt /total assets; DPOUT: dividend payout = Dividend per share/earnings per share; FSIZE: firm size = the natural logarithm of total assets. All OLS regression includes seven dummy variables for each of the eight industries based on Industry Classification Benchmark (ICB)

Model	**Dependent variables ROA**					
Year	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Observation	**274**	**304**	**335**	**342**	**331**	**308**
Constant	-5.802***	-5.72***	-6.459***	-4.277*	-2.947	-2.965
INDEP	0.003	0.007	0.004	0.015**	0.007	-0.003
BSIZE	-0.038	-0.029	-0.079**	-0.034	-0.023	-0.003
ROLE	0.207	-0.239	0.389	0.057	0.327	0.132
AUD	-0.674*	-0.608	-0.276	-0.077	-0.126	-0.038
DIRW	0.006	0.008*	0.008*	0.009*	0.007	0.01
EXCREM	0.538***	6.109***	0.512***	0.309**	0.244	0.268**
DEBT	-0.007*	-0.008	-0.002	-0.004	-0.01	-0.008***
DPOUT	0.006	0.036	-0.007	-0.008	0.01	0.032
FSIZE	-0.126*	-0.098*	-0.098*	-0.119*	-0.008	-0.03
Industry: Cons. Goods	-0.364	0.143	0.686*	0.482	-0.155	-0.071*
Industry: Cons. Serv.	-0.079	0.085	0.506*	0.203	-0.431	-0.431**
Industry: Health Care	-0.159	0.013	0.31	0.16	-0.574	-0.568
Industry: Industrials	-0.569	-0.66	-0.081	-0.06	-0.814	-0.72**
Industry: Oil & Gas	-0.212	0.044	0.445	0.265	-0.31	-0.442*
Industry: Technology	-0.337	-0.215	0.014	-0.065	-0.316	-0.505*
Industry: Utilities	-0.209	0.077	0.169	0.307	-0.454	-0.468
R-sq	0.157	0.126	0.146	0.099	0.093	0.106
Adj. R-sq	0.105	0.078	0.103	0.055	0.047	0.057
F	3.012***	2.604***	3.396***	2.246***	2.021**	2.168***

The excluded dummy variable for industry classification is basic materials

*** Significant at the 1% level **Significant at the 5% level *Significant at the 10% level.

5.4 General discussion to link the findings with previous studies

In this study the relationship between corporate governance and firm performance is examined using Ordinary Least Square regression (OLS). The analysis is carried out on a sample of UK listed companies on the London Stock Exchange (FTSE). All shares non-financial companies for the period 2005-2010. The selection method of the sample is widely used, and covers the economically most important companies, comparable with others in the USA. Furthermore the UK Corporate Governance Code is generally more applicable to the larger companies rather than smaller ones. Agency theory was utilised as a basis to develop the hypothesised relationships in which it will help to understand the impact or the effect of each variable. Two well-known performance measures commonly applied to the existing literature were used, which are market measure (Tobin's Q) and accounting measure (ROA). Internal governance mechanisms such as percentage of independent directors on board, managerial ownership, executive remuneration, audit committee, debt and dividend were linked with improvement in firm performance, while role duality and board size, on the other hand, were linked with decrease in firm performance. It is suggested that corporate governance mechanisms have an impact on firm performance and causal relationships occurred from corporate governance to firm performance.

5.4.1 Independent directors

With respect to the percentage of independent directors on the board, and based on the market measures (Tobin's Q), a positive association was found with firm performance across the six year period and is significant for the whole period 2005 to 2010 at 10% level for 2005, 2006 and 2009, 5% level for 2008 and 2010, and at the 1% level for 2007. This finding supports the Cadbury view, and consistent with the expectations of many corporate governance codes which promote the inclusion of more independent directors on the board, and it suggests that independent directors can impact firm performance and overall could be regarded as a substitute for other governance mechanisms (Weir et al., 2002). Also this finding suggests that a board with a higher proportion of independent directors is more effective due to the added experience and skills they have to monitor the board decision making process and to improve the board effectiveness. This result is consistent with other prior studies such as Pearce and Zahra (1992), Daily and Dalton (1992), Yermack (1999), Rodriguez and Anson (2001) and Ho and Williams (2003).

In terms of accounting measures (ROA), the percentage of independent directors is again positive across the whole period for six years apart from 2010 which has a negative coefficient sign but is only significant for the year 2008 at 5 % level. The finding of independent directors and firm performance apart from in 2008 is inconsistent with Bhagat and Black (2002) who found that board independence shows a significant negative association with both measures. Also, apart from 2010 the finding does not support previous empirical work on corporate governance studies which found that the association between the percentage of NEDs and ROA is negative, such as Weir and Laing (2000); Haniffa and Hudaib (2006) and Fich and Shivdasani, (2006). One of the recommendations of the Combined Code in 1998 required firms to have at least one-third of independent directors on the board. There are different studies which failed to find a relationship between the proportion of NEDs and firm performance such as Hermalin and Weisbach (1991), Mehran(1995), and Haniffa and Hudaib (2006). However, other studies found a negative relationship between board independence and firm performance such as Agrawal and Knoeber (1996), Weir et al. (2002), Bhagat and Black (2002) and Abdullah (2007). Moreover, Kiel and Nicholson (2003) did not find any relationship between the proportion of outside directors and firm performance and this finding is supported by Klein (1998).

5.4.2 Board size

Based on the market measure Tobin's Q, the association between board size and firm performance is positive across the six years apart from 2006 and significant only for 2005 and 2007 with 10%. This finding apart from 2006 is inconsistent with several past studies that examined the relationship between firm performance and board size such as, Yermack (1996); Conyon & Peck (1998); Klein (1998); Vefeas (1999a); Bhagat & Black, (2002); Ferris *et al.*, 2003); Haniffa and Hudaib (2006); Sakawa & Watanabel (2007); Cheng et al. (2008); Coles et al. (2008); and Guest (2009). However, it supports previous studies which found a positive association between firm performance and board size such as Adams and Mehran (2005); Beiner et al. (2006); Henry (2008); and Mangena and Tauringana (2008). It is explained theoretically as the market perceives the larger board more effective than the smaller board due to the greater access provided by the larger board to the external environment of the firm which decreases uncertainty and facilitates the guaranteeing of major resources such as finance (Goodstein et al., 1994). However, with the accounting measure

(ROA), a negative association is observed for all the period from 2005 to 2010, significant only for 2007 at the 5% level The negative coefficient is consistent with other studies such as Eisenberg et al., (1998); Ho and Williams (2003); Kiel and Nicholson (2003); Shabbir and Padget, (2005); Mangena and Chamisa (2008) and Guest (2009). However, this finding contradicts others which found a positive association between board size and accounting returns such as Sanda et al., (2005); Haniffa and Hudaib (2006) and Mangena and Tauringana (2008). In theory, it means that larger boards are less effective.

5.4.3 Role Duality

Based on both the market measure (Tobin's Q) and the accounting measure (ROA), there was found a positive association between CEO duality with firm performance across the six years, apart from 2006 in ROA which showed a negative association, significant at the 5 % level or the year 2005 and at 10% for 2006 and 2007 with Q only. This result is found contrary to the expectation of role duality that it would lead to agency problems which in that way impacts on poor performance for the firm; also empirically it does not support the recommendations of corporate governance codes that the roles of CEO and chairman should be separated. It is similar to other past studies such as Faccio and Lasfer (1999) and Dahya and McConnell (2005a). However, other studies found that when the CEO and chairman are split the firms are more valuable and it strengthens the monitoring ability of the board, for example Rechner and Dalton (1991); Jensen (1993); Hermalin and Weisbach (1991), Yermack (1996); Vefeas and Theodorou (1998); Sanda et al., (2005); and Haniffa and Hudaib (2006). The discussion in the literature review showed that different empirical studies have reported conflicting results in developed countries, especially from the United Kingdom and the United States. However, Daily & Dalton (1992) argue that CEO duality is more common in poorly performing firms than well performing firms. Contrary to expectations the absence of duality has no significant impact on firm performance based on accounting measures but it was found to have a significant impact on firm performance on market measures in 2005, 2006 and 2007, which is supported by Donaldson and Davis (1991) and Boyd (1995). In theory, the suggestion is that role duality gives the CEO who has charisma and vision the opportunity to have a stronger view on the objectives of the firm without interference from the excessive board (Haniffa and Cooke, 2002, p.321). Also, it facilitates decisions which could be made quicker and that could improve firm performance. Regarding the negative association found in 2006 for ROA, it is suggested that the market identifies role

duality as not a good practice because one person with too much power can get engaged in opportunistic activities.

5.4.4 Audit committee

With respect to the Audit committee, based on the market measure (Tobin's Q), the finding shows that there is negative association with Tobin's Q across the period 2005 to 2010 apart from 2007 and 2010 which have a positive coefficient sign, but only significant for the year 2005 at 10%. It indicates that Audit has no impact on performance and this result is consistent with other studies such as Vefeas and Theodorou (1998); Weir and Laing (2000); Weir et al. (2002) and Mangena and Chamisa (2008). For the year 2005, it is consistent with other studies which found statistically significant positive or negative association between audit committee and Tobin's Q such as Vefeas (1999a) and Karamanous and Vefeas (2005).

Based on accounting measures (ROA), the finding shows that the coefficient signs are negative across the six years between Audit and firm performance but are only significant for the year 2005 at 5 % Level. Based on Cadbury claims, if Audit committees assist to offer high effective financial monitoring and to be able to align the interest between managers and shareholders, then firm performance would be expected to be influenced by the characteristics of Audit committees (Weir et al. 2002). Agency theory suggests that the mere presence of audit committee contributes towards reducing the predominant agency costs (Mendez and Garcia, 2007) and thus, enhances firm's survival chances. In this respect, audit committee presence is linked to better governance quality and reduced information asymmetries. Taking into account the high adoption rate of the Audit committee, empirically its insignificance in explaining ROA is not highly unexpected as this particular mechanism is mostly used by the majority of firms and a very small number that do not have an Audit committee.

5.4.5 Managerial ownership

It is expected that there is a convergence between shareholders and managers when these managers own some of the shares in the company. The hypothesis states that as managerial ownership increases above zero, performance of the firm improves because managers are expected to be less motivated to pull away resources from value entrenchment until a particular point, when the board becomes entrenched and performance is likely to decline.

With respect to managerial ownership, based on the market measure (Tobin's Q), the findings show there is a positive association between managerial ownership and firm performance for the whole period apart from 2008, which has a negative coefficient sign, but is only statistically significant for 2005 and 2007 at the 10 % level As for 2008, managerial ownership association with Q is negative. This effect may be time specific - the period was one of stock market decline and it may be that firms with large managerial ownership were hit the hardest. Generally, large firms survive in the index, and the correlation between directors' ownership and firms' size is shown as negative in Appendix 3.

Based on the accounting measure (ROA), the association between managerial ownership and firm performance is positive across the whole period 2005 to 2010, but is only statistically significant for the years 2006, 2007 and 2008 at 10% level. The significant and positive relationship between director ownership and the ROA is consistent with a number of prior studies that found director ownership improves the corporate performance (See for example, Mehran, 1995, Holderness *et al.,* 1999, Core and Larcker, 2002). However, Faccio and Lasfer (1999) found a weak association between firm performance and managerial ownership and this is supported as well by other studies such as Short and Keasey (1999); Ho and Williams (2003) Beiner et al.(2006), and Mangena and Chamisa (2008). In theory, the entrenchment hypothesis could explain the negative coefficient sign. This hypothesis points out that with higher levels of shareholdings' directors; these directors could gain sufficient voting power and use it as a protection against any disciplinary decisions taken by minorities' shareholders. Such a situation encourages managers to become engaged in opportunistic behaviour, including the consumption of more perquisites, which could have an effect on firm performance financially. Generally, statistically insignificant and negative coefficients as such in 2008 and 2009 on director shareholding mean that the director entrenchment hypothesis is supported. The implication of such finding is that at high levels of shareholding, directors tend to concentrate on maximising their own utility, such as guaranteed employment with attractive salaries to the disadvantage of other shareholders.

5.4.6 Executive remuneration

With respect to executive remuneration, based on both measures market measure (Tobin's Q) and accounting measure (ROA), executive remuneration is found to be statistically positively related to firm performance. This finding is consistent with other studies which found a

positive association between executive remuneration and firm performance such as Conyon and Leech (1994); Main, Bruce and Buck (1996); Benito and Conyon (1999); O'Neill and Lob (1999); Crespi-Cladera and Gispert (2003) and Stathopoulus, Espenlaub and Walker (2005). However, this finding fails to offer empirical support for past studies such as Ezzamel and Watson (1997); Gregg, Jewell and Tonks (2005) and Girma, Thomson and Wright (2007) which found a weak link between executive remuneration and firm performance. In theory, studies have been carried out to examine if executive remuneration is an effective mechanism to align shareholders' interest with their managers (Scholtz and Smit, 2012). Barber, Ghiselli and Deale (2006) found that the conflict of interest between managers and shareholders led to the perception that the executives have personal goals and that there might be a weak association between the compensation of the CEO and firm performance. Their conclusion is that the problem could be solved by the alignment of interests between shareholders and the incentives of the managers through the pay-performance link, therefore maximizing shareholder values. Jensen and Meckling (1976) found that the remuneration package of the agent plays an effective role in monitoring the manager. Other studies found that there is a relationship between executive remuneration and firm performance as a result of the improvement of corporate governance measures such as Conyon and Leech (1994); Conyon (1997) and Weir and Laing (2000) and Rankin (2007). This finding is expected following the adoption of a series of corporate governance reforms throughout the last two decades to find an increase in this pay-performance elasticity over time, since a common theme in these reforms was that executive pay should be related to company performance

5.4.7 Debt

With regards to the debt ratio, based on the market measure (Tobin's Q) there is a positive association with firm performance for the whole period 2005 to 2010 apart from in 2005 which has a negative coefficient sign but is only significant at the 10% level or the year 2008. Based on accounting measure (ROA), the association between debt and firm performance is negative across all years from 2005 to 2010, significant only for the years 2005, 2009 and 2010 at 10%, 5% and 1% levels respectively. It seems that even with more debt there is no impact on firm performance and on its value. Agency theory suggests that debt is considered a good mechanism to make the managers more disciplined, so it is not supported here based on such a relationship between debt and firm performance. Contrary to the free cash flow hypothesis, leverage is negative, similar studies found such a result by Agrawal and Knoeber

(1996), Dowen (1995), McConnell and Servaes (1995) and Short and Keasey (1999), Bohren and Odegaard (2001), Tam and Tan (2007) and Aljifri and Mustafa (2007). McConnell and Servaes (1995) explained the situation as one where projects with positive net present values declining in availability due to the existence of excessive debt.

5.4.8 Dividend

With regard to dividend, there is a negative association between dividend and firm performance for the years 2005, 2007 and 2008, while for the years 2006, 2009 and 2010 there is a positive association based on the market measure (Tobin's Q). Focused on the accounting measure (ROA), there is a negative association for three years 2007, 2008 and 2010, while a positive association for the years (2005 2006 and 2009), which is only significant for 2009 at 10%.There are some studies which found a negative association between dividend and firm performance, such as Bohren and Odegaard (2001) and Aljifri and Moustafe (2007), but which are inconsistent with La Porta et al. (1999) who claim that shareholders with weak protection want to get more dividends irrespective of the availability of any investment opportunities. Therefore, when there is ineffective protection it is possible for the dividend to be used as a substitute mechanism. It is argued that in a country where the protection of the shareholders is strong, firms who have high pay-out dividends tend to use the cash to reinvest in upcoming projects because their shareholders could delay the receipt of dividends. Given that, retained earnings are less when there are strong shareholders' rights along with higher dividends, and thus there is a lower growth rate. The positive relationship between dividend and firm performance supports the agency theory where dividends are considered a good mechanism to discipline managers.

5.4.9 Control Variables

With respect to control variables, based on the market measure (Tobin's Q), there is a negative significant association between firm size and firm performance for all the variables. This finding is consistent with studies finding a negative association between firm size and firm performance such as Haniffa and Hudaib (2006), Al-Khouri (2006), Durnev and Kim (2005), Weir et al. (2002) and Agrawal and Knoeber (1996). But this finding contradicts studies that found a positive association such as Yermack, (1996) and Carter et al., (2003). Regarding the industry dummies, there is not any significant association in this study and this

finding is inconsistent with previous studies which suggest that industry and year of operation has an effect on Tobin's Q such as Durnev and Kim (2005) and Haniffa and Hudaib (2006), With respect to the accounting measure (ROA), there is a negative association between firm size and firm performance for all the variables but is only significant at the 10% level or the years 2005, 2006, 2007 and 2008. This finding contradicts previous studies which found that ROA and firm size are positively linked such as Weir and Laing (2000) and Bozec (2005). Moreover, the results indicate that a mixed relationship exists between firm performance and industry dummies. Industry consumer goods, industry consumer services, industry oil and gas, industry utilities and industry healthcare shows a positive association with ROA for the years 2006, 2007 and 2008, which is only significant at 10% for the years 2007 and 2010 for the first two industries and for 2009 for healthcare. These industry dummies have a negative association for the years 2005, 2009 and 2010. Industry industrials and technology show a negative association for the whole period 2005 to 2010 apart from 2008 for technology industry, which is significant at 10% for the year 2010, while industrial is significant at 10% and 5% for the years 2009 and 2010 respectively. The positive coefficient of the above industry dummies is consistent with prior studies such as Shabbir and Padgett (2005) and Haniffa and Hudaib (2006) which found that accounting returns are different through financial years and different industries.

5.5 Endogeneity

The analysis in the previous sections will be extended in this section as all the reported results were based on the analysis using the ordinary least square regressions. By doing that, it is supposed that corporate performance is affected by corporate governance structure. The discussion in chapter two highlights that there is a prospect where the corporate governance structure is affected by corporate performance, and there is another possibility is that the explanatory variables are endogenous. Vogt. W. Paul (1999, 101) stresses that *"[An] endogenous variable is a variable that is an inherent part of the system being studied and the value of which is determined within the system. This variable is caused by other variables in a causal system. It is contrasted with an exogenous variable. An exogenous variable is a variable entering from and determined from the outside of the system being studied*". Vogt. W. Paul differentiates the exogenous and endogenous variable in a causal system. Green (2003) points out that in such conditions, Ordinary Least Square (OLS) provides inconsistent

and biased estimates of the casual effect of the explanatory variables on the dependent variables.

The endogeneity problem occurs when there is a correlation between at least one or more explanatory variable with the error term. Two-Stage Least Square (2SLS) is used to extend the analysis where additional variables are needed and added to the equation, and these additional variables are called "instrumental" variables. There is a condition in which dependent variables and these selected instrumental variables should have no correlation with each other but instrumental variables are correlated with the endogenous variables, yet there is no correlation with the error terms. Lagged endogenous variables and other predictor variables were used as instrumental variables in the analysis. The selection of the lagged variables as instrumental variables for this analysis is because of the type of research data collected for this study, which consisted of a set of observations prepared at diverse points in time on a big number of firms. Therefore, there is a propensity that there is a correlation for the data across observations but it seems less possible that the values at an early point in time of the variables are directly affecting current values of dependant variable.

5.5.1 Previous studies

A list of research studies in governance that have taken into consideration the endogeneity problem are provided in the following table 4.6.

Table 5.6 List of Studies Using Simultaneous equations

Author(s)	Method	Instrumental variables	Issue	Justification IV and extents of endogeneity problem
Himmelberg, Hubbard, & Palai (1999)	2SLS	Use log sales, use log sales squared, std deviation and std deviation dummy as instrumental variables	Ownership and firm performance	Discuss the difficulty in determining the instrument variables for managerial ownership
S. Hermalin and Weisbach (1991)	OLS & 2SLS	Lagged variables	Board composition, ownership structure and performance	Use Hausman test
Agrawal and Knoeber (1996)	3SLS	Firm performance (Q) and control mechanisms	Governance and performance	Not available
Palia (2001)	2SLS, estimates three different specifications for the simultaneous system, first specification does not	CEO experience, quality of education, firm volatility and CEO age. These variables are expected to be related to	Managerial compensation and firm	Hausman and Taylor (1981) test. Check for insignificant correlation between IVS and error term. In addition, Palia

	include any control variables, second specification includes the control variables, third specification is expanded to include other variables that have been found statistically significant capital intensity, free cash flow, board & ownership structure, CEO founder)	compensation. These variables are chosen as instrumental variables because other studies indicate that these variables to be related to the structure of managerial compensation	value	provides an explanation on why other governance variables was used as control variables instead of as IVs
Cho (1998)	2SLS, 3SLS. But report only 2SLS because 2SLS and 3SLS give the same result qualitatively. Three specifications on simultaneous equations	Use lagged value of leverage to control for the possibility that financial leverage is endogenously determined. Lagged Q was also used (Lagged values)	Ownership structure and corporate value	Not available. Cho noted that 2SLS and 3SLS regression provide qualitatively similar results. His primary results suggest that endogeneity affects the results of OLS regressions
Barnhart & Rosenstein (1998)	2SLS	Four sets of instruments are developed for three endogenous variables (Q, OUT, bard composition, and OWN)	Board composition, managerial ownership and firm performance.	Logit transformation is used when ownership and board independence is the dependent variable
Demsetz and Villalonga (2001)	OLS & 2SLS	Ownership structure is assumed to be endogenous	Ownership structure and firm performance	Not avilable
Bhagat and Black (2002)	3SLS	Normalised earnings per share, fraction of independent directors	Board independence and long term firm performance	Not available

		over the board size, and share ownership by all directors and officers		
Vafeas (2006)	2SLS	Use univariate and multivariate tests	Board meeting frequency and firm performance	Not available
Young (2000)	Consider three endogenous variables; the number of executive board members, the level of managerial equity ownership and the level of dividend payments.	IV not used. Univariate tests of sensitivity to changes in endogenous variables.	UK board structure and governance arrangements	Not available
Lasfer (2006)	2SLS	Firm size (In(ME)) growth opportunities (Q), R & D/sales, capital intensity (fixed assets over total assets), and standard deviation of stock returns.	Managerial ownership and board structure	Not available. However, he noted that the endogeneity issue may not be directly accounted for in his research owing to unavailability of data that is specific to managers and /or the board.

Choosing instrumental variables have been discussed by several studies, for example Larcker and Rusticus (2005) and Bound, Jaeger and Baker (1995) identified problems in selecting instrumental variables. They particularly identified a potential problem when using an instrument which has only a weak correlation with the endogenous independent variable. The Hausman test is recommended to be carried out to test the suitability of using OLS and the presence of the endogeneity problem (Larcker & Rusticus, 2005)

5.5.2 Appropriateness of Instrumental Variables

In this study, 2SLS was carried out using a set of instrumental variables consisting of lagged endogenous variables and other predictor variables. The correlation between the instrumental variables and error term was obtained from the main equation in order to determine the appropriateness of the instrumental variables. Error term and the instrumental variables should have no correlation with each other. The correlation results between these instrumental variables and error term indicate that there is no correlation and thus based on this correlation these instrument variables are valid to be used. If the correlation between the endogenous variables and the instrumental variables is between moderate to high the instrumental variables are considered exogenous. Appendix Ch. 4.2 illustrates the correlations of these variables.

In this study, independent directors (INDEP) and board size (BSIZE) are the explanatory variables that are endogenous while the instrumental variables will be considered more exogenous than the endogenous variables (INDEP and BSIZE) when its correlation to the endogenous variables is moderate to high (Larcker & Rusticus; 2005). Appendix Ch. 4.1 provides the correlation of the explanatory variables to their lagged values. Correlation between INDEP, and INDEP$n\text{-}_1$ is about 72% to 75%, while for BSIZE is about 86% to 87%.

5.5.3 Results of Two Stage Least Squares (2SLS) Regression

The results of 2SLS regressions for firm performance measures Tobin's Q and ROA against the corporate governance mechanisms and financial policies (debt and dividend) will be discussed in this section. As mentioned in the previous section, running 2SLS regressions analysis will use instrumental variables. To run 2SLS, there are two ways: the first way is about using two steps of ordinary least squares (OLS), and the second way is about more directly using the availability of the 2SLS method in the SPSS software. The two steps of

OLS contains running of the OLS twice for each endogenous variable. The steps involved are described in the following section.

5.5.4 Two Steps OLS

In this thesis, INDEP (board independence) and BSIZE (board size) are assumed as endogenous variables. As discussed in the previous section, lagged endogenous variables are appropriate instrumental variables, thus 2SLS regression will use the lagged value of endogenous variables INDEP and BSIZE. As INDEP and BSIZE are being considered as endogenous, the two step OLS is run twice; one for each variable.
In the first OLS, each endogenous variable is taken up as the dependent variable and regressed against its lagged value, board size, executive remuneration, managerial ownership, dividend, debt, firm size and the industry control variable.

The first OLS regression is;

$INDEPn = INDEP_{n-1} + BSIZE_n + DIRW_n, + EXCR_n + DEBT_n + DPOUT_n + FSIZE_n + IC$

The predicted value of INDEP is obtained after running the above regression. This obtained predicted value of INDEP will replace INDEP in which it will be regressed with other explanatory variables against Tobin's Q using the following equation;

$Q = predictedINDEP + BSIZEn + DIRW_n + EXCR_n + DEBT_n + DPOUT_n + FSIZE_n + IC$

As discussed earlier, both INDEP and BSIZE are being considered endogenous, thus the same procedure of INDEP was repeated for BSIZE. This is illustrated in Appendix Ch. 4.3.
Since the predicted value of INDEP and BSIZE are obtained, using a new OLS equation as shown below for these predicted values to be regressed with Q as dependent variable. The new equation is as follows. The results using the following equation are reported in Appendix Ch. 4.3.

$Q = predicted\ INDEP + predicted\ BSIZE + DIRW_n + EXCR_n + DEBT_n + DPOUT_n + FSIZE_n + IC$

5.5.5 2SLS results using SPSS

The second way of running 2SLS in SPSS is also employed here to confirm the results obtained in the above section. After using 2SLS, the significance level of the explanatory variables is reported in the following table 4.7.

Table 5.7 2SLS; Q regressed against board, directors' ownership, executive remuneration, dividend and debt, board structure is assumed to be endogenous

Model	**Dependent variables Tobin's Q**				
Years	**2006**	**2007**	**2008**	**2009**	**2010**
Observation	299	323	335	326	307
Constant	-8.952***	-7.526***	-5.749**	-7.241**	-6.081**
INDEP	0.021**	0.02**	0.022**	0.018*	0.019**
BSIZE	0.007	0.076*	0.104*	0.048	0.031
ROLE	0.439*	0.505*	0.268	0.324	0.287
AUD	-0.029	0.34	-0.517	-0.373	0.024
DIRW	0.005	0.007	-0.003	0.01	0.012*
LGEXCREM	0.719***	0.532***	0.453***	0.539***	0.431**
DEBT	0.027	0.004	0.005*	0.002*	-0.002
DPOUT	0.03	-0.006	-0.014	0.053	0.11*
FSIZE	-0.393***	-0.37***	-0.344***	-0.24***	-0.213**
Industry: Cons. Goods	0.294	0.21	-0.085	0.079	0.19
Industry: Cons. Serv.	0.112	0.205	0.056	0.125	-0.168
Industry: Health Care	0.004	-0.021	-0.167	-0.205	-0.215
Industry: Industrials	0.178	0.237	-0.042	0.095	-0.105
Industry: Oil & Gas	-0.019	0.021	-0.128	-0.03	-0.081
Industry: Technology	0.019	-0.092	-0.207	-0.16	-0.073
Industry: Utilities	0.212	-0.043	-0.215	-0.198	-0.23
R-sq	0.231	0.153	0.119	0.095	0.092
Adj. R-sq	0.188	0.109	0.074	0.048	0.043
F	5.137***	3.475***	2.682***	2.037**	1.853**

The dependent variable is measured by Tobin's Q, which is measured by (Market Cap + Liabilities + Preferred Equity + Minority Interest) / Total Assets. Instruments are the lagged values of board structure (INDEP AND BSIZE) and other exogenous variables, and control variables. The independent variables include DIRW: Director ownership= the total shareholdings of directors over the total number of shares, INDEP: Independent directors= Proportion of non-executive directors to total number of directors; BSIZE: board size = Total number of directors on the board; AUD: Audit Committee = Dummy variable; 1 if there is an audit committee,0 otherwise; ROLE: role duality = Dummy variable—1 if the chairman is also the CEO, 0 otherwise; EXCREM: Executive Remuneration= Natural logarithm of total board remuneration (both remuneration executive and non-executive); DEBT: total debt = Total debt /total assets; DPOUT: dividend payout = Dividend per share/earnings per share; FSIZE: firm size = the natural logarithm of total assets. All OLS regression includes seven dummy variables for each of the eight industries based on Industry Classification Benchmark (ICB), the excluded dummy variable for industry classification is basic materials, ***, **, * denotes significant at 1%, 5% and 10% level respectively.

The results of Q being regressed against board structure and other explanatory variables using two-stage least square regression (2SLS) are presented in table 4.7. To reiterate, in running regression board size (BSIZE) and board independence (INDEP) are assumed to be endogenous. The instrumental variables are the lagged values of INDEP and BSIZE, and other explanatory variables. Generally, executive remuneration (apart from in 2008) and firm size consistently show impact on the firm performance. Comparing the results obtained from 2SLS regression in the above table and OLS regression (table 4.4), a similar pattern of coefficients for the variables is shown, but is shifted by one year which is not unexpected as the dependent variable is the same for the different year's explanatory variables. The signs of INDEP in table 4.7 are similar to the signs for INDEP in table 4.4, but the significance levels of INDEP in table 4.7 where it is significant at 5% for 2006, 2007 and 2008, while it is significant at 10% for 2009 and 2010. But Table 4.4 shows INDEP is significant for the years 2005, 2006, 2009 with 10%, 2007 with 1% and 2008 and 2010 at 5%. However, this is not the case for board size, where there is a change in the coefficient sign of BSIZE for the year 2006 from positive to negative and it shows there is association between BSIZE and Tobin's Q for the years 2010 and 2007 with 10%, while BSIZE is positively associated with Tobin's Q for the year 2008 with 5%. Also by using two steps OLS, the same result was produced as above.

Table 5.8 2SLS; ROA regressed against board, directors' ownership, executive remuneration, dividend and debt, board structure is assumed to be endogenous

Model	**Dependent variables ROA**				
Years	**2006**	**2007**	**2008**	**2009**	**2010**
Observation	299	323	335	326	307
Constant	-6.61***	-6.727***	-3.337*	-4.511*	-4.278**
INDEP	0.014*	0.006	0.009	0.015*	0.01*
BSIZE	-0.042	-0.086*	-0.019	-0.068	-0.008
ROLE	-0.103	0.395	0.078	0.307	0.119
AUD	-0.468	-0.223	-0.255	-0.032	-0.016
DIRW	0.015**	0.009*	0.008	0.009	0.011*
LGEXCREM	0.507***	0.521***	0.262*	0.348**	0.328**
DEBT	-0.002	-0.002	-0.005	-0.01**	-0.008**
DPOUT	0.006	-0.026	-0.007	0.01	0.028
FSIZE	-0.102*	-0.106*	-0.103*	-0.015	-0.081
Industry: Cons. Goods	0.164	0.63*	0.519	-0.171	0.043
Industry: Cons. Serv.	0.078	0.446	0.22	-0.44	-0.32
Industry: Health Care	0.004	0.243	0.185	-0.587*	-0.458
Industry: Industrials	-0.632*	-0.159	-0.048	-0.793*	-0.657*
Industry: Oil & Gas	0.04	0.392	0.294	-0.331	-0.319
Industry: Technology	-0.19	-0.006	-0.034	-0.349	-0.383
Industry: Utilities	0.077	0.118	0.321	-0.473	-0.352
R-sq	0.133	0.132	0.066	0.104	0.109
Adj. R-sq	0.084	0.087	0.02	0.059	0.06
F	2.714***	2.929***	1.442	2.293***	2.23***

The dependent variable is measured by Return on Assets (ROA) = Earnings before interest and taxes over total assets for each year. Instruments are the lagged values of board structure (INDEP AND BSIZE) and other exogenous variables, and control variables. The independent variables include DIRW: Director ownership= the total shareholdings of directors over the total number of shares, INDEP: Independent directors= Proportion of non-executive directors to total number of directors; BSIZE: board size = Total number of directors on the board; AUD: Audit Committee = Dummy variable; 1 if there is an audit committee,0 otherwise; ROLE: role duality = Dummy variable—1 if the chairman is also the CEO, 0 otherwise; EXCREM: Executive Remuneration= Natural logarithm of total board remuneration (both remuneration executive and non-executive); DEBT: total debt = Total debt /total assets; DPOUT: dividend payout = Dividend per share/earnings per share; FSIZE: firm size = the natural logarithm of total assets. All OLS regression includes seven dummy variables for each of the eight industries based on Industry Classification Benchmark (ICB), the excluded dummy variable for industry classification is basic materials, ***, **, * denotes significant at 1%, 5% and 10% level respectively.

The results of ROA regression (table 4.8) show clear evidence supporting the obtained results of OLS reported in Table 4.5. INDEP is constantly showing a positive association with ROA, which is significant at 5% for the years 2006, 2009 and 2010. BSIZE is constantly showing a negative association with ROA, which is significant at 5% for the year 2007.

5.6 Summary and conclusion

The relationship between corporate governance and corporate performance is evaluated and examined in this study. The literature on corporate governance and previous studies examined the relationship between performance and governance produced mixed results. Board characteristics (board size, independent directors, CEO duality and Audit committee); managerial ownership, executive remuneration and financial policies (Debt and Dividend) are chosen to proxy corporate governance structure for the company. Tobin's Q and Return on Assets (ROA) are chosen to proxy firm performance. The sample is considered the list of non-financial members' companies of the FTSE All Share Index between two particular points: the end of December 2004 and the end of March 2011. OLS results for Tobin's Q and ROA regressed against corporate governance variables and control variables were reported.

The endogeneity issue in regression was examined in this chapter, instrumental variables selection were highlighted and the results of 2SLS regression for corporate performance Tobin's Q and ROA on corporate were analysed and discussed. As reported by Himmelberg et al (1999), it is recognised that selecting appropriate instrumental variables for regression is difficult. Larker and Rusticus (2005) suggested that lagged values are appropriate as instrumental variables and were employed in this study. As it has been discussed that choosing instrumental variables is difficult and that its justification differs, some studies do not include the justification on the selection of these instrumental variables, for instance: Agrawal and Knoeber(1996),Cho (1998),Bhagat and Black (2002) and Lasfer (2006)). However, a simple justification of the instrumental variables was given in this study. Moreover, the technical approach to the Stage Least Square regressions is provided which help to clarify and understand better the operationalisation of the endogeneity issue and regression. Finally, the results of the 2SLS regression discussed above showed that no evidence was found of a causal association which goes from the firm performance to the board or corporate governance structure. But, seemingly, if any causal link is found between board structure and other corporate governance mechanisms, it is from the governance structure to firm performance.

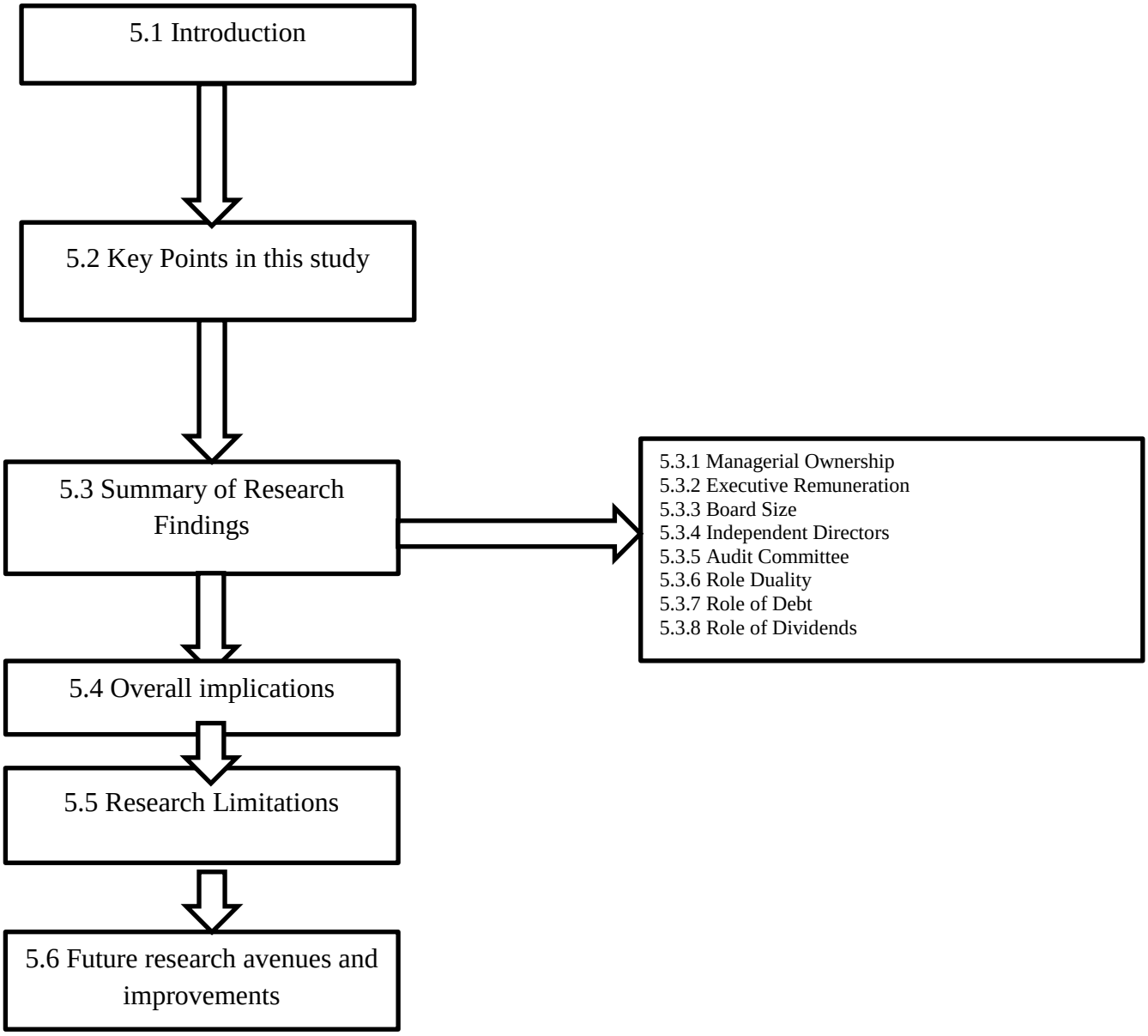


Figure 6 Diagram of chapter five

6 Chapter five: Conclusion

6.1 Introduction

Corporate governance has emerged over the past two decades as a fundamental problem in financial regulation. Generally, from 1990, the corporate governance subject has increasingly been scrutinised and public listed companies have made an attempt to put some procedures in action for the operations of the company, to be managed and controlled in order to increase performance, encourage disclosure and achieve maximisation of shareholders' return; thus their interests are protected. This chapter presents the conclusion of the thesis. This chapter mainly focuses on putting together the previous chapters, summarising and discussing the overall results, explaining the initial contribution of this research through the issues examined, summarising the main findings resulting from the analysis using the methods discussed in chapter four. Moreover, it includes a section to display the limitations facing this study in some areas and it identifies some potential avenues for further suggestions, for future research and areas of improvements.

6.2 Key points in this study

As mentioned at the start of this study, several studies on the relationship between corporate governance and firm performance have provided mixed results. All the empirical work concentrates on the association between firm performance and corporate governance structure. Generally, the main objective of this thesis is to explore and examine the relationship between internal corporate governance mechanisms and firm performance. The selection of FTSE All Shares listed companies from the period of 2005 to 2010 forms the population of this thesis, excluding the financial firms, as they are entitled to a particular code. Choosing public listed companies is compatible with all the other previous work which makes it comparable and suitable for the recommendation of governance codes. Based on the main general objective, this study addresses several questions which are able to present an association between the study and the potential findings. As the topic is still widely debated and the main arguments are still valid, so this study is important in adding some contributions to the existing literature and providing results to be comparable with other studies in a different time setting, using a set of data collected from Bloomberg financial database for the period of 2005 to 2010. The study follows the majority of other studies in applying OLS

regressions as the main method to analyse the data and produce the results. In order to answer the major questions which address the relationship between firm performance and corporate governance mechanisms, a series of eight hypotheses are tested as mentioned in chapter three. Furthermore, two –stage least square regression (2SLS) was employed in this study also to look at the possibility that firm performance may affect the corporate governance structure.

The literature chapter in this study drew the related theories to this topic, reviewed the literature linked to corporate governance and discussed it, concentrating on the previous and current literature testing how firm performance and value is affected by corporate governance mechanisms and highlighting all the mains arguments resulting from such relationship in some empirical work, conducted mainly in developed world such as the UK and the US.
The methodology chapter presented the research paradigm, design and approach, and the main methods followed and applied in this research to explore the relationship between corporate governance mechanisms and firm performance in the UK, detailing the main research questions and objectives and data collection methods. The analytical procedures followed in this study were also presented. The analysis chapter included all the results obtained from OLS and 2SLS regressions for the annual reports data; also a general discussion section showing all the main results with regards to the main questions in this study were provided.

6.3 Summary of research findings

This thesis has employed UK data to examine the relationship between internal corporate governance mechanisms and firm performance. Generally, although the results are mixed as in previous empirical work, some interesting findings have arisen from the research. The findings will be presented in accordance with the research hypothesis and some previous work, either supporting or not supporting the findings, will be included. Finally overall implications will be discussed, followed by a summary table showing the outcome of the hypothesis.

6.3.1 Managerial ownership

The first hypothesis tested is that there is a positive relationship exists between directors' ownership and firm performance. The OLS regression finding of the relationship between managerial ownership and firm performance based on Tobin's Q shows a positive relationship but 2008 has a negative coefficient; but only statistically significant for 2005 and 2007 at (10%). Also the findings are positive with ROA across the whole sample period 2005 to 2010, but only statistically significant for the years 2006, 2007 and 2008 with 10%. These findings are consistent with other previous works such as Faccio and Lasfer (1999), Short and Keasey (1999); Ho and Williams (2003) Beiner *et al*. (2006), and Mangena and Chamisa (2008). The entrenchment hypothesis explains that directors with high shareholdings levels are capable of using it as a protection against any disciplinary actions taken by minority shareholders.

6.3.2 Executive remuneration

The Second hypothesis investigated is that there is a positive relationship existing between executive remuneration and firm performance. The OLS regressions findings of the relationship between executive remuneration and firm performance for both measures Tobin's Q and ROA shows a significant positive relationship for the whole period of six years. These studies have found similar results to the finding of this study, Conyon and Leech (1994); Main, Bruce and Buck (1996); Benito and Conyon (1999); O'Neill and Iob (1999); Crespi-Cladera and Gispert (2003) and Stathopoulus, Espenlaub and Walker (2005). However, some studies have found a weak link between executive remuneration and firm performance, such as Ezzamel and Watson (1997); Gregg, Jewell and Tonks (2005) and Girma, Thomson and Wright (2007).

6.3.3 Board size

The third hypothesis examined is that there is a negative relationship existing between board size and firm performance. The findings of board size based on Tobin's Q showed that there is a positive association for the whole sample period of six years apart from 2006 but it is only a significant association for two years 2005 and 2007 with (10%). This finding is consistent with past studies that show there is a positive association between board size and firm performance such as Adams and Mehran (2005); Beiner et al. (2006); Henry (2008); and

Mangena and Tauringana (2008). However, it is inconsistent with the agency theory perspective, and other previous studies examined the impact of board size on performance, arguing that smaller board size is more effective and finding a negative relationship between board size and performance such as Yermack (1996); Conyon and Peck (1998); Klein (1998); Vefeas (1999a and b); Bhagat & Block, (2002); Haniffa and Hudaib (2006); Sakawa and Watanabel (2007); Cheng et al. (2008); Coles et al. (2008); and Guest (2009). Also, there is a general perspective that a smaller board is better for performance and can make the company more valuable (Beiner et al., 2003; Kholief, 2008). Lipton and Lorsh (1992) recommended that board size to be consisted of 8 or 9 members or 10 as a maximum, while Jensen (1993) recommended 7 or 8 members on board. The findings of board size based on the accounting measure (ROA), a negative association is observed for all the period from 2005 to 2010, but significant only for 2007 at (5%).The negative coefficient is consistent with other studies such as Eisenberg et al., (1998); Ho and Williams (2003); Kiel and Nicholson (2003); Shabbir and Padget, (2005); Mangena and Chamisa (2008) and Guest (2009). However, this finding contradicts others which found a positive association between board size and accounting returns such as Sanda et al., (2005); Haniffa and Hudaib (2006) and Mangena and Tauringana (2008). In theory, it means that larger boards are less effective.

6.3.4 Independent directors

The fourth hypothesis tested is that there is a positive relationship existing between firm performance and the proportion of independent directors. The finding from the OLS regression of the relationship between independent directors and firm performance based on Tobin's Q measures shows that there is a positively significant association across the six years (2005 to 2010) with (10%) for 2005, 2006 and 2009, with (5%) for 2008 and 2010 and with (1%) for 2007. This finding is consistent with the recommendation of the Cadbury report and with other corporate governance codes. Also, this finding is similar to other past studies such as Pearce and Zahra (1992), Daily and Dalton (1992), Rodriguez and Anson (2001) and Ho and Williams (2003). The relationship between independent directors and firm performance under ROA measure shows again that there is a positive association across the whole period for six years apart from 2010 which has a negative coefficient sign but only significant for the year 2008 at (5%). However it is not similar to the significant negative association found by Agrawal and Knoeber (1996), Klein (1998), Bhagat and Black (2002),

Weir et al. (2002), Beiner et al. (2003), Abdullah (2007), Bhagat and Bolton (2008), Coles et al. (2008) and Toledo (2010). This positive relationship indicates that the market sees the presence of independent directors on the firm board as positive corporate governance practice due to the fact that their presence has the potential to improve the board's decisions.

6.3.5 Audit Committee

The fifth hypothesis analysed is that a positive relationship exists between firm performance and audit committee. The OLS regression finding of the relationship between audit committee and firm performance shows a negative association across the period from (2005 to 2010) apart from 2007 and 2010 which have a positive coefficient sign, but only significant for the year 2005 with (10%). This finding means that there is no impact for this variable on firm performance and it is consistent with other studies such as Vefeas and Theodorou (1998); Weir and Laing (2000); Weir et al. (2002) and Mangena and Chamisa (2008). Based on ROA as a performance measure; the finding shows that the coefficient signs are negative across the six years between Audit and firm performance but are only significant for the year 2005 with 5%. This finding is explained as that there is a high adoption of audit committees as a mechanism amongst firms. Vefeas (1999a) and Karamanous and Vefeas (2005) found a significant positive or negative relationship between audit committees and Tobin's Q.

6.3.6 Role duality

The sixth hypothesis tested is that a negative relationship exists between role duality and firm performance.The findings of both measures Tobin's Q and ROA for role duality shows a positive association between CEO duality and firm performance, in particular a significant association with Tobin's Q in 2005, 2006 and 2007, but in 2006 the ROA measure showed a negative sign. Regarding the significant association of role duality in 2005 and 2006 for Tobin's Q it is consistent with Donaldson and Davis (1994) and Boyd (1995).

This finding shows that there is no significant relationship found between CEO duality and firm performance based on the ROA measure which shows a contradiction of the main argument of agency theory and of the recommendation of Cadbury Report in 1992. Other previous studies have found the same findings such as Daily and Dalton (1992), Faccio and Lasfer (1999), Dahya and McConnell (2005a), Haniffa and Hudaib (2006) and Toledo (2010). It is argued that both the recommendations of Cadbury Report (1992) and the

arguments of agency theory believe that CEO duality affects negatively the role of the boards in monitoring and assessing managers. The empirical work reviewed in the literature with regards to role duality showed conflicting results in UK and US.

6.3.7 Role of debt

The seventh hypothesis examined is that firms with a higher level of debt have a higher level of performance. Based on Tobin's Q measure, there is a positive association with firm performance for the whole period 2005 to 2010 apart from in 2005 which has a negative coefficient sign but is only significant at 10% for the year 2008.With regards to ROA as a performance measure, there is a negative association across all years from 2005 to 2010, significant only for the years 2005, 2009 and 2010 at 10%, 5% and 1% respectively. This finding is consistent with a number of studies such as McConnell and Servaes (1995), Agrawal and Knoeber (1996), Bohren and Odegaard (2001), Aljifri and Mustafa (2007), and Tam and Tan (2007). Generally, as the relationship between debt and performance is negative it means this mechanism is not effective in reducing the agency problems and is not supporting the hypothesis of free cash flow. McConnell and Servaes (1995) explained the situation as one where projects with positive net present values are declined due to the existence of excessive debt.

6.3.8 Role of dividends

The eighth and final hypothesis analysed is that a positive relationship exists between firm performance and dividend payout. Based on Tobin's Q measure, there is a positive association for three years, 2006, 2009 and 2010, while for the rest - 2005, 2007 and 2008 - there is a negative association but both sets are not significant. Based on ROA, there is a positive association for the years 2005, 2006, and 2009 but is significant only for 2009 at 10%, while for 2007, 2008 and 2010 there is a negative association. The positive significant association indicates that dividend policy is a good mechanism in reducing agency problems and it is consistent with the agency theory perspective, hypothesis of cash flow and consistent with other empirical work such as Jensen (1993), Odegaard (2001) and Alwi (2009). It is argued that shareholders with less protection are keen to gain more dividends irrespective of investment opportunities (La Porta et al., 1999). Based on that, dividends could be the substitute mechanism when there is poor protection. While in advanced countries where the shareholders' protection is strong, firms which pay high dividends tend to invest their monies

in future projects because the shareholders are happy to wait for receiving the dividends. For the years where there is a negative association between dividend and performance, but not a significant one, they are consistent with these two studies Bohren and Odegaard (2001) and Aljifri and Moustafa (2007).

6.4 Overall implications of the study and summary table showing the outcomes for the hypothesis

Recent corporate governance recommendations require UK listed firms to comply with a number of corporate governance mechanisms. These mechanisms aim to improve corporate performance and ensure that directors act in the best interests of shareholders. A review of the current empirical literature suggests that most prior corporate governance studies have focused on US firms, which have different characteristics to firms in different countries. For example, unlike the US, corporate governance recommendations in the UK adopt a voluntary approach which requires listed firms to comply or justify, while in the US corporate governance recommendations are legal requirements which have to be followed by listed firms. Arguably, the UK corporate governance framework represents a different environment in which to explore the relationship between corporate governance recommendations and corporate performance. This study has employed UK data to investigate the relationship between company performance and internal corporate governance mechanisms. Although the findings are mixed, a number of interesting results have emerged from the study.

The results show that the relationship between governance mechanisms and performance is a complex one. They therefore raise questions about the efficiency of a policy that imposes prescribed internal governance structures on firms because such an approach creates difficulties when trying to assess the effectiveness of those mechanisms. The results have added to the policy debate concerning the appropriateness of different governance mechanisms and the extent of their substitutability. It seems that the widespread compliance with the Code of Best Practice makes it difficult to assess the effectiveness of the Code's governance mechanisms. Greater flexibility and a recognition that the mix of governance mechanisms may vary according to a firm's specific circumstances offer a possible solution. It may be that a greater understanding of the process of the governance mechanisms is one way forward.

Based on the results of Chapter four, several implications can be discussed. First, the findings suggest that, regardless of the corporate performance measure used, percentage of independent directors has a significant impact on corporate performance in UK listed firms. This finding is consistent with the recommendation of the Cadbury report and the Combined Code on corporate governance or the general trend in the UK to include more independent directors on corporate boards. This positive relationship indicates that the market sees the presence of independent directors on the firm board as positive corporate governance practice due to the fact that their presence has the potential to improve the board's decisions. As has been mentioned above, empirically this is not a surprise given the number of prior empirical studies that have reported a positive relationship between independent directors and corporate performance. The appointment of independent directors on corporate board contributes to the decision-making process and to the monitoring role in the board meetings. It may also be possible that independent directors' knowledge and skills improve the effectiveness of the board and subsequently the corporate performance.

Second, the findings suggest that managerial ownership has a significant impact on corporate performance measured by Tobin's Q and ROA. Higher directors' ownership seems to be associated with director entrenchment. The entrenchment hypothesis explains that directors with high shareholdings levels are capable of using it as a protection against any disciplinary actions taken by minority shareholders. The implication of this finding is that at high levels of shareholding, directors tend to concentrate on maximising their own utility, such as guaranteed employment with attractive salaries to the disadvantage of other shareholders. This is because they hold enough voting power to effectively insulate themselves against any disciplinary action. This also suggests that director ownership is assessed differently by different parties. As has been mentioned before, the ROA is preferred by directors and reflects the current values, whereas Tobin's Q predicts the future growth opportunities and is preferred by perspective and current investors.

Third, evidence was found of a strong relationship between executive remuneration and company performance measures Tobin's Q and ROA. Following the adoption of a series of corporate governance reforms it is expected to find an increase in this pay-performance elasticity over time, since a common theme in these reforms was that executive pay should be related to company performance. The potential link between executive remuneration and company performance is supported by the proposal that firms have a common goal in maximizing

shareholder wealth which is achieved and affected by management decisions and that directly influences their rewards depending on the output.

Fourth, it has been suggested that a large board of directors is likely to be related to the development of corporate performance. In addition, a large board of directors is likely to be associated with more experience and knowledge, which makes the board able to make decisions based on worthy advice. Theoretically, this indicates that the market perceives larger boards as more effective. This is because larger boards offer greater access to their firms' external environment, which reduces uncertainties and facilitates securing of critical resources, such as finance, raw materials and contracts.

Fifth, evidence was found of a negative relationship between audit committee and company performance measures Tobin's Q and ROA. This finding is explained as that there is a high adoption of audit committees as a mechanism amongst firms. Audit committee effectiveness has no significant influence in the firm performance. The explanation behind these may probably due to the effect of adopting an audit committee was not detected due to its long-term influence. Sixth, in theory, the suggestion is that role duality gives the CEO who has charisma and vision the opportunity to have a stronger view on the objectives of the firm without interference from the excessive board and it facilitates decisions which could be made quicker and that could improve firm performance. But the empirical work reviewed in the literature with regards to role duality showed conflicting results in UK and US. The finding is contrary to the expectation of role duality that it would lead to agency problems which in that way impact on poor performance for the firm; also empirically it does not support the recommendations of corporate governance codes that the roles of CEO and chairman should be separated. The negative coefficient, however, suggests that the market perceives CEO duality as a bad practice. It is argued that both the recommendations of Cadbury Report (1992) and the arguments of agency theory believe that CEO duality affects negatively the role of the boards in monitoring and assessing managers. Seventh, it seems that even with more debt there is no impact on firm performance and on its value. Agency theory suggests that debt is considered a good mechanism to make the managers more disciplined, so it is not supported here based on such a relationship between debt and firm performance. It implies that firms forego projects with positive net present values because they have excessive debt. This underinvestment means that firms with growth opportunities will exhibit a negative relationship between debt and firm value. Eighth, the agency cost theory suggests

that, dividend policy is determined by agency costs arising from the divergence of ownership and control. Managers may not always adopt a dividend policy that is value-maximizing for shareholders but would choose a dividend policy that maximizes their own private benefits. Making dividend pay-outs which reduces the free cash flows available to the managers would thus ensure that managers maximize shareholders' wealth rather than using the funds for their private benefits (DeAngelo et al., 2006). The finding showed a positive significant for just one year with ROA.

The results show that there is a relationship between governance mechanisms and performance but it is a complex one. They illustrate the importance of the influence of some of governance mechanisms. These governance mechanisms seem to be substitutes. They therefore raise questions about the efficiency of a policy that imposes prescribed internal governance structures on firms because such an approach creates difficulties when trying to assess the effectiveness of those mechanisms. Given these results, it is not clear how far compliance with the UK Governance benefits shareholders' interests, particularly as this study did not examine the external governance mechanisms where for example the market for corporate control could be an effective governance mechanism. It may be, however, that the board governance structures recommended in the Code are appropriate but, because of a lack of information about the non-executive directors regarding their expertise and independence, inappropriate appointments are being made.

If general rules are inappropriate, it may be that a system that reflects the company-specific situation should be adopted. In other words, a particular governance structure may be appropriate for one firm but not for another. For example, duality may have a positive impact on a company if the person is dynamic and talented but a negative one if the person is autocratic. How shareholders are supposed to differentiate between the two situations is not clear. Nevertheless an alternative more flexible approach, based on recognition that governance mechanisms may vary according to specific circumstances may be appropriate, Short et al. (1999). Although the UK Governance Code recognises that flexibility should be a part of the governance system, the prescriptive nature of the Code does little to encourage such an approach. These results lend weight to the need for greater flexibility in understanding how governance control mechanisms impact in particular circumstances.

Given that some of the corporate governance mechanisms are crucial in improving firm performance, such as independence and executive remuneration, the London Stock Exchange

and the Financial Conduct Authority may further increase their observation of the level of compliance among listed firms. The Financial Reporting Council may, for instance, establish a special committee to check periodically the level of compliance, and make its recommendations accordingly.

As mentioned in chapter three, the hypotheses included in this study consist of the following, and are tested through the use of the regression analyses: table 5.1 presents the outcomes of these hypotheses.

H1: A positive relationship exists between directors' ownership and firm performance.

H2: A positive relationship exists between Executive remuneration and firm performance.

H3: A negative relationship exists between board size and firm performance.

H4: A positive relationship exists between firm performance and the proportion of independent directors.

H5: A positive relationship exists between firm performance and Audit Committee.

H6: A negative relationship exists between role duality and firm performance.

H7: Firms with a higher level of debt have a higher level of performance.

H8: A positive relationship exists between firm performance and dividend payout.

Table 6.1 Shows the outcomes of the hypotheses

Measure	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Tobin's Q						
DIRW	Supp.		Supp.			
INDEP	Supp.	Supp.	Supp.	Supp.	Supp.	Supp.
AUD	Unsupp.					
ROLE	Unsupp.	Unsupp.	Unsupp.			
BSIZE	Unsupp.		Unsupp.			
DEBT				Supp.		
DPout						
EXCREM	Supp.	Supp.	Supp.	Supp.	Supp.	Supp.
Return on Assets						
DIRW		Supp.	Supp.	Supp.		
INDEP				Supp.		
AUD	Unsupp.					
ROLE						
BSIZE			Supp.			
DEBT	Unsupp.					Unsupp.
Dpout					Supp.	
EXCREM	Supp.	Supp.	Supp.	Supp.		Supp.

In addition, this thesis also investigates the causal relationship between corporate governance and corporate performance. Two-stage least squares regression was used to test whether corporate governance affects corporate performance or vice versa. The results reported in section 4.5.5 provide the same evidence as the ordinary least square regressions for all performance measures. That is, board or ownership structure is not endogenous and rather the link, if any, between the governance and performance is from the governance to performance.

6.5 Research limitations

Although the findings of any empirical research are important, and this thesis is no different, it might still be restricted by some limitations which should be addressed.

- The selection of the sample size and procedure over the period was not straight forward as some companies get taken over or dropped out across the years. Although control for different biases in sample design has been taken, it is still not perfect and different approaches could have given different results.
- This research includes only internal corporate governance mechanisms and does not include the external mechanisms. Also it is limited to large UK companies.

- Some of the corporate governance variables might have suffered definitional problems, for example, shareholding ownership was not split clearly into shares owned by executive and non- executive directors, and independent directors were not distinguished into non-executive directors and independent directors.
- The variation in the governance of companies is not observable due to Combined Code and other regulations.
- Industry sectors were defined as Bloomberg benchmark and grouped accordingly into eight sectors excluding any financial or banking sector.
- OLS and 2SLS regressions were applied in this research to produce the results but other regressions such as 3SLS and fixed effects estimation could be used.

The findings of this research have therefore been interpreted based on the above limitations. These limitations could be potential research avenues in the future, which will be discussed in the next section.

6.6 Future research avenues and improvements

In this section of the conclusion chapter, potential avenues for future research and improvements need to be pointed out. First, as has been mentioned throughout the work the study has mainly examined the association between internal corporate governance structures and firm financial performance. Future studies and further work could investigate the impact of external corporate governance mechanisms, such as the market for corporate control, the managerial labour market, and the law, amongst others, affect firm financial performance. Also, the interaction or interdependence between external and internal mechanisms and their effect on firm performance could be an area for further analysis. Second, the majority of the studies in this field mainly focused on listed companies so extending the studies to smaller companies is another area for investigation, as more variation in governance is likely within smaller firms than larger companies complying with the UK Corporate Governance Code. Third, given the current international financial crisis and its association with director pay and bonuses, it will be interesting for future research to focus on the relationship between director (i.e., CEO, executive, non-executive and independent) pay and company performance among UK listed firms. Fourth, more research is needed on boards of directors and not only the effects of board structure and composition on firm performance need to be investigated. More contentious, however, is the question of what determines board effectiveness in large

corporations. Which are the most important factors that drive the adoption/operation of specific board structures, mechanisms and practices? How can we develop measures of board effectiveness that incorporate the operations/processes which characterise boards?, to what extent do factors such as ownership configuration (executive/board ownership, concentration, institutional ownership, etc.), organisational characteristics (type, industry, age, leverage, growth, etc.), board member characteristics (education, experience, reputation, etc.) and general board characteristics (leadership, experience, diversity, etc.) also influence board effectiveness? A satisfactory answer to these questions will enhance our understanding of several board practices and dynamics and, also, help identify any 'gaps' in governance. The results from such an investigation could be important for firms themselves when seeking to better understand/design their governance arrangements. Additionally, the research will be useful for external monitors (e.g., as part of their own appraisals of companies' governance), auditors (e.g., for governance/compliance risk analysis), fund managers (e.g., for voting decision analysis) and regulators (e. g., as part of developing governance standards/policies and listing requirements).

More broadly, in the context of the mixed governance-performance evidence mentioned above, the results will foster a richer characterisation of the linkage(s) between corporate governance and firm financial performance to the extent that they provide a broader and more rigorous analysis of what 'good' governance involves and what its determinants might be.

Fifth, and in terms of improvement to this study, future research can re-examine the corporate governance-firm financial performance relationship by expanding the sample size and over a longer period of time to include the period after 2010. Such a study can estimate both balanced and un-balanced panels to avoid survivorship bias. Furthermore to improve this study, different control variables in the model other than industry and firm size such as debt and dividend, could be used. Also firm size could be measured differently as book to value rather than using total assets. In addition, could compose the sample of all the companies throughout the period even the dropped out, merged, disappeared and taken over companies to test the role of corporate governance in these failure companies. It can also examine only financial firms or both financial and non-financial firms to ascertain whether the current findings are sensitive or robust to different sample specifications. Finally, future studies can adopt different research methodology, such as qualitative and event study research designs to examine the relationship between corporate governance and firm financial performance.

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Appendices

Appendix A

Appendix Ch.3.1 Table shows the process of finalising the sample and List of companies survived over three years with its industry

Process of finalising the sample													Final Sample			
#	Company Key	Company Name	2005	2006	2007	2008	2009	2010	Decision	Survived before 2005	Nbr of yes	more than 3	Company code	8 industries	General Industry Code	Companies: Number of years survived (between 2005-2010)
1	BRGE LN	BLACKROCK GREATER EUROPE INV	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	888 LN Equity	Consumer Services	2	6
2	PCT LN	POLAR CAPITAL TECHNOLOGY TR	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	AGS LN Equity	Consumer Services	2	6
3	AAL LN	`	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	AGA LN Equity	Consumer Goods	1	6
	ANTO LN	ANTOFAGASTA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	AGK LN Equity	Industrials	4	6
5	APF LN	ANGLO PACIFIC GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	AMEC LN Equity	Oil & Gas	5	6
6	AQP LN	AQUARIUS PLATINUM LTD	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	AAL LN Equity	Basic Materials	0	6
7	BLT LN	BHP BILLITON PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	APF LN Equity	Basic Materials	0	6
8	BOC LN	BOC GROUP LTD/THE	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	AEP LN Equity	Consumer Goods	1	6
9	CGS LN	CASTINGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	AIE LN Equity	Technology	6	6
10	CRDA LN	CRODA INTERNATIONAL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	ASM LN Equity	Financials	2	4

11	CS/ LN	CORUS GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007	Yes	2	No	ANTO LN Equity	Basic Materials	0	6
12	DLTA LN	DELTA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	AQP LN Equity	Basic Materials	0	6
13	ELM LN	ELEMENTIS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	ARE LN Equity	Consumer Services	2	6
14	ENN LN	ENNSTONE PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	AKT LN Equity	Health Care	3	5
15	FLTR LN	FILTRONA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	ARM LN Equity	Technology	6	6
16	FOSE LN	FOSECO LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	9408593Q LN Equity	Industrials	4	5
17	ICI LN	IMPERIAL CHEMICAL INDS PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	ALY LN Equity	Consumer Services	2	6
18	JMAT LN	JOHNSON MATTHEY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	AHT LN Equity	Industrials	4	6
19	KAZ LN	KAZAKHMYS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	ABF LN Equity	Consumer Goods	1	6
20	LMI LN	LONMIN PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	AGR LN Equity	Financials	2	6
21	RIO LN	RIO TINTO PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	AZN LN Equity	Health Care	3	6
22	RRS LN	RANDGOLD RESOURCES LTD	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	ATK LN Equity	Industrials	4	6
23	SMDS LN	DS SMITH PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	AU/ LN Equity	Technology	6	6
24	VCT LN	VICTREX PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	AVV LN Equity	Technology	6	6
25	VED LN	VEDANTA RESOURCES PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	AVE LN Equity	Consumer Services	2	6
26	XTA LN	XSTRATA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	ASD LN Equity	Health Care	3	6
27	YULC LN	YULE CATTO & COMPANY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BAB LN Equity	Industrials	4	6

28	2290657Q LN	INCISIVE MEDIA PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	BA/ LN Equity	Industrials	4	6
29	AGS LN	AEGIS GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	BBY LN Equity	Industrials	4	6
30	AMT LN	AMSTRAD LTD	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	BAG LN Equity	Consumer Goods	1	6
31	BLZ LN	EMBLAZE LTD	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	Died in 2008		5	Yes	BDEV LN Equity	Consumer Goods	1	6
32	BMY LN	BLOOMSBURY PUBLISHING PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BVC LN Equity	Technology	6	6
33	BSY LN	BRITISH SKY BROADCASTING GRO	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BBA LN Equity	Industrials	4	6
34	BT/A LN	BT GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	BWY LN Equity	Consumer Goods	1	6
35	BVC LN	BATM ADVANCED COMMUNICATIONS	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BRSN LN Equity	Industrials	4	6
36	CAU LN	CENTAUR MEDIA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BKG LN Equity	Consumer Goods	1	6
37	COLT LN	COLT GROUP SA	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BG/ LN Equity	Oil & Gas	5	6
38	CWC LN	CABLE & WIRELESS COMMUNICATI	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BLT LN Equity	Basic Materials	0	6
39	DMGT LN	DAILY MAIL&GENERAL TST-A NV	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BRGE LN Equity	Financials	2	6
40	EMA LN	EMAP INTERNATIONAL LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	BMY LN Equity	Consumer Services	2	6
41	ERM LN	EUROMONEY INSTL INVESTOR PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BOY LN Equity	Industrials	4	6
42	ERT LN	ENTERTAINMENT RIGHTS PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	BVS LN Equity	Consumer Goods	1	6
43	ESY LN	EASYNET GROUP LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	BP/ LN Equity	Oil & Gas	5	6

44	FTC LN	FILTRONIC PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008	Yes	3	No	BPP LN Equity	Consumer Services	2	4
45	FUTR LN	FUTURE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010	Yes	5	Yes	BMS LN Equity	Industrials	4	6
46	GCAP LN	GLOBAL RADIO LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	BRAM LN Equity	Industrials	4	6
47	HNT LN	HUNTSWORTH PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**	Died in 2008		4	Yes	BATS LN Equity	Consumer Goods	1	6
48	INF LN	INFORMA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BGY LN Equity	Utilities	7	4
49	ISAT LN	INMARSAT PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BPI LN Equity	Industrials	4	6
50	ITV LN	ITV PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	BSY LN Equity	Consumer Services	2	6
51	JPR LN	JOHNSTON PRESS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	BVIC LN Equity	Consumer Goods	1	5
52	KCOM LN	KCOM GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BWNG LN Equity	Consumer Services	2	6
53	LRD LN	LAIRD PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BTSM LN Equity	Consumer Services	2	5
54	MTLB LN	METAL BULLETIN PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	BT/A LN Equity	Telecommunications	6	6
55	OOM LN	TELEFONICA EUROPE PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	BGC LN Equity	Health Care	3	6
56	PSON LN	PEARSON PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	BNZL LN Equity	Industrials	4	6
57	REL LN	REED ELSEVIER PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	BRBY LN Equity	Consumer Goods	1	6
58	SPT LN	SPIRENT COMMUNICATIONS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BPTY LN Equity	Consumer Services	2	6
59	STVG LN	STV GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	Died in 2009		4	Yes	CWC LN Equity	Telecommunications	6	6

60	TEP LN	TELECOM PLUS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CBRY LN Equity	Consumer Goods	1	5
61	THUS LN	THUS GROUP PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008	Yes	3	No	CNE LN Equity	Oil & Gas	5	6
62	TLNT LN	TELENT PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	CAM LN Equity	Financials	2	6
63	TMW LN	TIMEWEAVE PLC	**Yes**	**No**	**No**	**No**	**Yes**	**No**	Died in 2006		2	No	CPI LN Equity	Industrials	4	6
64	TNI LN	TRINITY MIRROR PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	8275783Q LN Equity	Health Care	3	5
65	TNS LN	TAYLOR NELSON SOFRES PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008	Yes	3	No	EAGA LN Equity	Utilities	7	4
66	TRAD LN	TRADUS PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	CLLN LN Equity	Industrials	4	6
67	TRIL LN	THOMSON REUTERS UK LTD	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	Died in 2009		4	Yes	CCL LN Equity	Consumer Services	2	6
68	UBM LN	UBM PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CPR LN Equity	Consumer Services	2	6
69	UTV LN	UTV MEDIA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	3572335Q LN Equity	Consumer Services	2	5
70	VAN LN	VANCO PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	CGS LN Equity	Industrials	4	5
71	VOD LN	VODAFONE GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CAU LN Equity	Consumer Services	2	6
72	WIL LN	WILMINGTON GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CNA LN Equity	Utilities	7	6
73	WPP LN	WPP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CHTR LN Equity	Industrials	4	6
74	YELL LN	YELL GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	CHG LN Equity	Industrials	4	6

75	3572335Q LN	CARPHONE WAREHOUSE GROUPOLD	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	CHW LN Equity	Consumer Services	2	5
76	786560Q LN	WH SMITH PLC/OLD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	CHLD LN Equity	Industrials	4	5
77	888 LN	888 HOLDINGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CHS LN Equity	Consumer Services	2	6
78	AAP LN	AUTOGRILL HOLDINGS UK PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	CINE LN Equity	Consumer Services	2	4
79	AB/ LN	ALLIANCE BOOTS HOLDINGS LTD	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	CTO LN Equity	Industrials	4	6
80	AGA LN	AGA RANGEMASTER GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CKN LN Equity	Industrials	4	6
81	ALY LN	ASHLEY (LAURA) HOLDINGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CC/ LN Equity	Consumer Services	2	5
82	ARE LN	ARENA LEISURE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	COB LN Equity	Industrials	4	6
83	AXN LN	ALEXON GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	COLT LN Equity	Telecommunications	6	6
84	BDEV LN	BARRATT DEVELOPMENTS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	CMS LN Equity	Industrials	4	5
85	BKG LN	BERKELEY GROUP HOLDINGS	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CPG LN Equity	Consumer Services	2	6
86	BOS LN	BODY SHOP INTERNATL PLC/THE	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	CCC LN Equity	Technology	6	6
87	BPTY LN	BWIN.PARTY DIGITAL ENTERTAIN	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CNT LN Equity	Consumer Services	2	4
88	BRAM LN	BRAMMER PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CSRT LN Equity	Health Care	3	6
89	BRBY LN	BURBERRY GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	CKSN LN Equity	Industrials	4	6
90	BSLA LN	BLACKS LEISURE GROUP PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	COST LN Equity	Industrials	4	6

91	BTSM LN	BSS GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	CWK LN Equity	Consumer Goods	1	6
92	BVS LN	BOVIS HOMES GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	CRDA LN Equity	Basic Materials	0	6
93	BWNG LN	BROWN (N) GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	CSR LN Equity	Technology	6	6
94	BWY LN	BELLWAY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	DMGT LN Equity	Consumer Services	2	6
95	CC/ LN	CLINTON CARDS PLC	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	Died in 2008		5	Yes	DCG LN Equity	Consumer Goods	1	6
96	CCL LN	CARNIVAL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	DNX LN Equity	Oil & Gas	5	5
97	CFN LN	CAFFE NERO GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	DLAR LN Equity	Industrials	4	6
98	CHS LN	CHRYSALIS GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	DEB LN Equity	Consumer Services	2	5
99	CPG LN	COMPASS GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	DPH LN Equity	Health Care	3	6
100	CPK LN	CENTER PARCS (UK) GROUP PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	DLTA LN Equity	Industrials	4	5
101	CPR LN	CARPETRIGHT PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	DVO LN Equity	Consumer Goods	1	6
102	CRST LN	CREST NICHOLSON PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007	Yes	2	No	DGE LN Equity	Consumer Goods	1	6
103	DPLM LN	DIPLOMA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	DTY LN Equity	Consumer Services	2	6
104	DVR LN	DE VERE GROUP PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006	Yes	1	No	DDT LN Equity	Technology	6	5
105	DXNS LN	DIXONS RETAIL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	DPLM LN Equity	Industrials	4	6
106	EMH LN	EUROPEAN MOTOR HOLDINGS PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	DXNS LN Equity	Consumer Services	2	6

107	EMI LN	EMI GROUP LTD	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	DNO LN Equity	Industrials	4	6
108	ETI LN	ENTERPRISE INNS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	DRX LN Equity	Utilities	7	5
109	EZJ LN	EASYJET PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SMDS LN Equity	Industrials	4	6
110	FCCN LN	FRENCH CONNECTION GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010	Yes	5	Yes	DNLM LN Equity	Consumer Services	2	5
111	FCD LN	FIRST CHOICE HOLIDAYS PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007	Yes	2	No	E2V LN Equity	Industrials	4	6
112	FDL LN	FINDEL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	EZJ LN Equity	Consumer Services	2	6
113	FRS LN	FIRST TECHNOLOGY PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	EID LN Equity	Technology	6	4
114	GAW LN	GAMES WORKSHOP GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	ECM LN Equity	Industrials	4	6
115	GKN LN	GKN PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	ELM LN Equity	Basic Materials	0	6
116	GMG LN	GAME GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	BLZ LN Equity	Technology	6	5
117	GND LN	GONDOLA HOLDINGS LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	EEN LN Equity	Oil & Gas	5	4
118	GNK LN	GREENE KING PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	ETI LN Equity	Consumer Services	2	6
119	HAR LN	HARVARD INTERNATIONAL PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	ERM LN Equity	Consumer Services	2	6
120	HBR LN	HOLIDAYBREAK PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	EXPN LN Equity	Industrials	4	5
121	HDYS LN	HARDYS & HANSONS LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	FENR LN Equity	Industrials	4	6

122	HEAD LN	HEADLAM GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	FXPO LN Equity	Basic Materials	0	4
123	HFD LN	HALFORDS GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	FDSA LN Equity	Technology	6	6
124	HME LN	HOMESTYLE GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	FLTR LN Equity	Industrials	4	6
125	HMV LN	HMV GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	FDL LN Equity	Consumer Services	2	6
126	HOF LN	HOUSE OF FRASER LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	FGP LN Equity	Consumer Services	2	6
127	HWDN LN	HOWDEN JOINERY GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	FSJ LN Equity	Industrials	4	6
128	IAG LN	INTL CONSOLIDATED AIRLINE-DI	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	FPT LN Equity	Industrials	4	6
129	IHG LN	INTERCONTINENTAL HOTELS GROU	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	FCCN LN Equity	Consumer Services	2	5
130	INCH LN	INCHCAPE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	FSTA LN Equity	Consumer Services	2	6
131	INST LN	INSTORE LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	FUTR LN Equity	Consumer Services	2	5
132	JD/ LN	JD SPORTS FASHION PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	GFS LN Equity	Industrials	4	6
133	JDW LN	WETHERSPOON (J.D.) PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	GFRD LN Equity	Industrials	4	6
134	JJB LN	JJB SPORTS PLC	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	Died in 2008	Yes	5	Yes	GMG LN Equity	Consumer Services	2	6
135	KESA LN	KESA ELECTRICALS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	GEMD LN Equity	Basic Materials	0	4
136	KGF LN	KINGFISHER PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	GNS LN Equity	Health Care	3	4
137	LAD LN	LADBROKES PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	GKN LN Equity	Consumer Goods	1	6
138	LAN LN	LAND OF LEATHER HOLDINGS PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	GSK LN Equity	Health Care	3	6

139	LCI LN	LONDON CLUBS INTL PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	GLE LN Equity	Consumer Goods	1	6
140	LMR LN	LUMINAR GROUP HOLDINGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	GOG LN Equity	Consumer Services	2	6
141	LOOK LN	LOOKERS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	GPRT LN Equity	Industrials	4	5
142	LWB LN	LOW & BONAR PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	GSD LN Equity	Health Care	3	4
143	MAB LN	MITCHELLS & BUTLERS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	GNK LN Equity	Consumer Services	2	6
144	MKS LN	MARKS & SPENCER GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	GRG LN Equity	Consumer Services	2	6
145	MLC LN	MILLENNIUM & COPTHORNE HOTEL	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	HFD LN Equity	Consumer Services	2	6
146	MNZS LN	MENZIES (JOHN) PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	HLMA LN Equity	Industrials	4	6
147	MOSB LN	MOSS BROS GROUP PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	HAMP LN Equity	Industrials	4	5
148	MT/S LN	MYTRAVEL GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007	Yes	2	No	HAS LN Equity	Industrials	4	6
149	MTC LN	MOTHERCARE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	HEAD LN Equity	Consumer Goods	1	6
150	MTN LN	MATALAN LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	HHR LN Equity	Financials	2	6
151	NXT LN	NEXT PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	HIK LN Equity	Health Care	3	6
152	OKR LN	OTTAKAR'S PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	HILS LN Equity	Industrials	4	6
153	PDG LN	PENDRAGON PLC	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	Died in 2008	Yes	5	Yes	HFG LN Equity	Consumer Goods	1	4

154	PEA LN	PEACOCK GROUP PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	HMV LN Equity	Consumer Services	2	6
155	PIC LN	PACE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	HOC LN Equity	Basic Materials	0	5
156	PSN LN	PERSIMMON PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	HRG LN Equity	Industrials	4	4
157	PUB LN	PUNCH TAVERNS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	HBR LN Equity	Consumer Services	2	6
158	PWS LN	PINEWOOD SHEPPERTON PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	HOME LN Equity	Consumer Services	2	5
159	RDW LN	REDROW PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	HSV LN Equity	Industrials	4	6
160	REG LN	REGENT INNS PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	HRN LN Equity	Consumer Goods	1	6
161	RNK LN	RANK GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	HWDN LN Equity	Industrials	4	6
162	RTN LN	RESTAURANT GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	HTG LN Equity	Oil & Gas	5	6
163	SHI LN	SIG PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	HNT LN Equity	Consumer Services	2	4
164	SIG LN	SIGNET JEWELERS LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	HYC LN Equity	Industrials	4	6
165	SLY LN	GENTING UK PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	IMG LN Equity	Technology	6	6
166	SUY LN	SCS UPHOLSTERY PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	IMI LN Equity	Industrials	4	6
167	SVC LN	SALVESEN (CHRISTIAN) LTD	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	IMT LN Equity	Consumer Goods	1	6
168	TED LN	TED BAKER PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	INCH LN Equity	Consumer Services	2	6
169	TPK LN	TRAVIS PERKINS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	INF LN Equity	Consumer Services	2	6

170	TPT LN	TOPPS TILES PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	ISAT LN Equity	Telecommunications	6	6
171	TW/ LN	TAYLOR WIMPEY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	TIG LN Equity	Technology	6	5
172	UMB LN	UMBRO PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	ITL LN Equity	Technology	6	5
173	VDY LN	VARDY (REG) PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	IHG LN Equity	Consumer Services	2	6
174	WAGN LN	WAGON PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	IFL LN Equity	Basic Materials	0	4
175	WBY LN	WESTBURY LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	IPR LN Equity	Utilities	7	6
176	WGC LN	WYEVALE GARDEN CENTRES PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	IRV LN Equity	Industrials	4	6
177	WIN LN	WINCANTON PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	ITRK LN Equity	Industrials	4	6
178	WLB LN	WILSON BOWDEN PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007	Yes	2	No	IAG LN Equity	Consumer Services	2	6
179	WLW LN	WOOLWORTHS GROUP PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008	Yes	3	No	ISYS LN Equity	Technology	6	6
180	WMH LN	WILLIAM HILL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	ITE LN Equity	Consumer Services	2	6
181	WMPY LN	GEORGE WIMPEY LTD	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	ITV LN Equity	Consumer Services	2	6
182	WOS LN	WOLSELEY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	JD/ LN Equity	Consumer Services	2	6
183	WTB LN	WHITBREAD PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	JJB LN Equity	Consumer Services	2	5
184	3014039Q LN	RHM LTD	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	JKX LN Equity	Oil & Gas	5	6

185	3621272Q LN	SANOFI PASTEUR HOLDING LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	JMAT LN Equity	Basic Materials	0	6
186	7335286Q LN	CAMBRIDGE ANTIBODY TECH GRP	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	JPR LN Equity	Consumer Services	2	6
187	8275783Q LN	CARE UK LTD	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	KAZ LN Equity	Basic Materials	0	6
188	ABF LN	ASSOCIATED BRITISH FOODS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	KCOM LN Equity	Telecommunications	6	6
189	AEP LN	ANGLO-EASTERN PLANTATIONS	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	KLR LN Equity	Industrials	4	6
190	AGK LN	AGGREKO PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	KESA LN Equity	Consumer Services	2	6
191	AHT LN	ASHTEAD GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	KIE LN Equity	Industrials	4	6
192	AKT LN	ARK THERAPEUTICS GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	KGF LN Equity	Consumer Services	2	6
193	ARU LN	ARLA FOODS UK PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007	Yes	2	No	KFX LN Equity	Technology	6	6
194	ASD LN	AXIS-SHIELD PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	LAD LN Equity	Consumer Services	2	6
195	ATK LN	ATKINS (WS) PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	LRD LN Equity	Technology	6	6
196	AUN LN	ALLIANCE UNICHEM PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006	Yes	1	No	LVD LN Equity	Industrials	4	5
197	AVE LN	AVIS BUDGET EMEA LTD	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	LOG LN Equity	Technology	6	6
198	AZM LN	ALIZYME PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	LMI LN Equity	Basic Materials	0	6
199	AZN LN	ASTRAZENECA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	LOOK LN Equity	Consumer Services	2	6
200	BAB LN	BABCOCK INTL GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	LWB LN Equity	Industrials	4	6

201	BAG LN	BARR (A.G.) PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	LMR LN Equity	Consumer Services	2	5
202	BATS LN	BRITISH AMERICAN TOBACCO PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	MMC LN Equity	Industrials	4	6
203	BGC LN	BTG PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	MKS LN Equity	Consumer Services	2	6
204	BI/ LN	BRAMBLES INDUSTRIES PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	MSLH LN Equity	Industrials	4	6
205	BII LN	BIOCOMPATIBLES INTL PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	MARS LN Equity	Consumer Services	2	6
206	BNZL LN	BUNZL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	MCB LN Equity	Consumer Goods	1	6
207	BPP LN	BPP HOLDINGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	Died in 2009		4	Yes	MGGT LN Equity	Industrials	4	6
208	BRSN LN	BERENDSEN PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	MRO LN Equity	Industrials	4	5
209	CAM LN	CAMELLIA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	MRS LN Equity	Oil & Gas	5	6
210	CART LN	CARTER & CARTER GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	MNZS LN Equity	Industrials	4	6
211	CBRY LN	CADBURY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	MPI LN Equity	Industrials	4	6
212	CMS LN	COMMUNISIS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	MCRO LN Equity	Technology	6	6
213	CPI LN	CAPITA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	MLC LN Equity	Consumer Services	2	6
214	CRG LN	CORIN GROUP PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	MSY LN Equity	Technology	6	6
215	CSRT LN	CONSORT MEDICAL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	MAB LN Equity	Consumer Services	2	6
216	CSV LN	CORPORATE SERVICES GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in		2	No	MTO LN Equity	Industrials	4	6

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217	CWK LN	CRANSWICK PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	MNDI LN Equity	Basic Materials	0	4
218	DCA LN	DETICA GROUP PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	MONY LN Equity	Consumer Services	2	4
219	DCG LN	DAIRY CREST GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	MGCR LN Equity	Industrials	4	6
220	DGE LN	DIAGEO PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	MGNS LN Equity	Industrials	4	6
221	DLAR LN	DE LA RUE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	MTC LN Equity	Consumer Services	2	6
222	DPH LN	DECHRA PHARMACEUTICALS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	MCHL LN Equity	Industrials	4	6
223	DTY LN	DIGNITY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	NEX LN Equity	Consumer Services	2	6
224	DVO LN	DEVRO PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	NG/ LN Equity	Utilities	7	6
225	DWN LN	DAWSON HOLDINGS PLC	**Yes**	**No**	**No**	**Yes**	**No**	**No**	Died in 2006		2	No	NCC LN Equity	Technology	6	4
226	ETR LN	ENTERPRISE PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	NXT LN Equity	Consumer Services	2	6
227	FPT LN	FORTH PORTS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	NFDS LN Equity	Consumer Goods	1	6
228	FSTA LN	FULLER SMITH & TURNER -"A"	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	NTG LN Equity	Industrials	4	6
229	GFS LN	G4S PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	NWG LN Equity	Utilities	7	6
230	GLH LN	GALLAHER GROUP LTD	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	OPTS LN Equity	Health Care	3	5
231	GRG LN	GREGGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	OXB LN Equity	Health Care	3	6
232	GSD LN	GOLDSHIELD GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	Died in 2009		4	Yes	OXIG LN Equity	Industrials	4	6

233	GSK LN	GLAXOSMITHKLINE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	PIC LN Equity	Technology	6	6
234	GUS LN	EXPERIAN FINANCE PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	PSON LN Equity	Consumer Services	2	6
235	GYG LN	GYRUS GROUP PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	PDG LN Equity	Consumer Services	2	5
236	HAS LN	HAYS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	PNN LN Equity	Utilities	7	6
237	HHR LN	HELPHIRE GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	PSN LN Equity	Consumer Goods	1	6
238	HIK LN	HIKMA PHARMACEUTICALS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	PFC LN Equity	Oil & Gas	5	6
239	HSV LN	HOMESERVE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	PNX LN Equity	Technology	6	6
240	HTL LN	HUNTLEIGH TECHNOLOGY PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	PHTM LN Equity	Consumer Goods	1	6
241	HYC LN	HYDER CONSULTING PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	PCT LN Equity	Financials	2	6
242	IMT LN	IMPERIAL TOBACCO GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	PFL LN Equity	Industrials	4	6
243	IOV LN	INNOVATA PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	PFD LN Equity	Consumer Goods	1	6
244	IRV LN	INTERSERVE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	PMO LN Equity	Oil & Gas	5	6
245	ISO LN	ISOTRON PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	PSK LN Equity	Health Care	3	6
246	ITE LN	ITE GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	PON LN Equity	Technology	6	6
247	ITRK LN	INTERTEK GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	PUB LN Equity	Consumer Services	2	6
248	JRVS LN	JARVIS PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	PVCS LN Equity	Oil & Gas	5	4

249	JSG LN	JOHNSON SERVICE GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	PZC LN Equity	Consumer Goods	1	6
250	MARS LN	MARSTON'S PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	QQ/ LN Equity	Industrials	4	5
251	MCB LN	MCBRIDE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RE/ LN Equity	Consumer Goods	1	5
252	MMC LN	MANAGEMENT CONSULTING GROUP	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RRS LN Equity	Basic Materials	0	6
253	MPI LN	MICHAEL PAGE INTERNATIONAL	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RNK LN Equity	Consumer Services	2	6
254	MRW LN	WM MORRISON SUPERMARKETS	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RB/ LN Equity	Consumer Goods	1	6
255	NFDS LN	NORTHERN FOODS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	RDW LN Equity	Consumer Goods	1	6
256	NSR LN	NESTOR HEALTHCARE GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	REL LN Equity	Consumer Services	2	6
257	NTG LN	NORTHGATE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	RSW LN Equity	Industrials	4	6
258	OFF LN	OFFICE2OFFICE PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	RNVO LN Equity	Health Care	3	5
259	OXB LN	OXFORD BIOMEDICA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RTO LN Equity	Industrials	4	6
260	PDP LN	PD PORTS LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	RTN LN Equity	Consumer Services	2	6
261	PFD LN	PREMIER FOODS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	REX LN Equity	Industrials	4	6
262	PSK LN	PROSTRAKAN GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RCDO LN Equity	Industrials	4	6
263	PTI LN	BTG MANAGEMENT SERVICES LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	RMV LN Equity	Consumer Services	2	5
264	PZC LN	PZ CUSSONS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	RIO LN Equity	Basic Materials	0	6

265	RB/ LN	RECKITT BENCKISER GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RM/ LN Equity	Technology	6	6
266	RFD LN	RICHMOND FOODS LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	RWA LN Equity	Industrials	4	6
267	RPS LN	RPS GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RWD LN Equity	Consumer Goods	1	6
268	RTO LN	RENTOKIL INITIAL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	ROK LN Equity	Industrials	4	5
269	RWA LN	ROBERT WALTERS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RR/ LN Equity	Industrials	4	6
270	RWD LN	ROBERT WISEMAN DAIRIES PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	ROR LN Equity	Industrials	4	6
271	SAB LN	SABMILLER PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RDSA LN Equity	Oil & Gas	5	6
272	SBRY LN	SAINSBURY (J) PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RDSB LN Equity	Oil & Gas	5	6
273	SCTN LN	SCOTTISH & NEWCASTLE LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	RPC LN Equity	Industrials	4	6
274	SDY LN	SPEEDY HIRE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	RPS LN Equity	Industrials	4	6
275	SHL LN	SHL GROUP LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	SAB LN Equity	Consumer Goods	1	6
276	SHP LN	SHIRE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	SAFE LN Equity	Financials	2	4
277	SIV LN	ST. IVES PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	SGE LN Equity	Technology	6	6
278	SKP LN	SKYEPHARMA PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008	Yes	3	No	SBRY LN Equity	Consumer Services	2	6
279	SMON LN	SIMON GROUP PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	SMDR LN Equity	Oil & Gas	5	4
280	SN/ LN	SMITH & NEPHEW PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SVS LN Equity	Financials	2	6
281	SRG LN	SPRING GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	Died in		4	Yes	SWG LN Equity	Industrials	4	4

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282	SRP LN	SERCO GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SDL LN Equity	Technology	6	6
283	SSL LN	SSL INTERNATIONAL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010	Yes	5	Yes	SNR LN Equity	Industrials	4	6
284	SVS LN	SAVILLS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	SEPU LN Equity	Technology	6	4
285	TATE LN	TATE & LYLE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SRP LN Equity	Industrials	4	6
286	THT LN	THORNTONS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	SFR LN Equity	Industrials	4	6
287	TRB LN	TRIBAL GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	SVT LN Equity	Utilities	7	6
288	TRS LN	TARSUS GROUP PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**	Died in 2008		4	Yes	SKS LN Equity	Industrials	4	6
289	TSCO LN	TESCO PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SHP LN Equity	Health Care	3	6
290	ULVR LN	UNILEVER PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SHI LN Equity	Industrials	4	6
291	UNIQ LN	UNIQ PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008	Yes	3	No	SN/ LN Equity	Health Care	3	6
292	VER LN	VERNALIS PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	SMIN LN Equity	Industrials	4	6
293	VP/ LN	VP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	NWS LN Equity	Industrials	4	5
294	LNGO LN	LAING (JOHN) PLC-ORD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	SIA LN Equity	Oil & Gas	5	6
295	MCTY LN	MCCARTHY & STONE PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006	Yes	1	No	SCHE LN Equity	Health Care	3	5
296	MTO LN	MITIE GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SXS LN Equity	Industrials	4	6

297	VMOB LN	VIRGIN MOBILE HLDGS (UK) LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	SDY LN Equity	Industrials	4	6
298	3426724Q LN	BURREN ENERGY PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008	Yes	3	No	SPX LN Equity	Industrials	4	6
299	AMEC LN	AMEC PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SPT LN Equity	Technology	6	6
300	BG/ LN	BG GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SPO LN Equity	Consumer Services	2	4
301	BP/ LN	BP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SPD LN Equity	Consumer Services	2	4
302	CNE LN	CAIRN ENERGY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	SRG LN Equity	Industrials	4	4
303	DNX LN	DANA PETROLEUM PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	SSE LN Equity	Utilities	7	6
304	EEN LN	EMERALD ENERGY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	Died in 2009		4	Yes	SSL LN Equity	Consumer Goods	1	5
305	EXR LN	EXPRO INTERNATIONAL GRP LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	SIV LN Equity	Industrials	4	6
306	HTG LN	HUNTING PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	SGC LN Equity	Consumer Services	2	6
307	JKX LN	JKX OIL & GAS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	STHR LN Equity	Industrials	4	5
308	MRS LN	MELROSE RESOURCES PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	STOB LN Equity	Industrials	4	5
309	PFC LN	PETROFAC LTD	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	STVG LN Equity	Consumer Services	2	4
310	PMO LN	PREMIER OIL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	TALV LN Equity	Basic Materials	0	4
311	RDSA LN	ROYAL DUTCH SHELL PLC-A SHS	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	TRS LN Equity	Consumer Services	2	4
312	RDSB LN	ROYAL DUTCH SHELL PLC-B SHS	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	TATE LN Equity	Consumer Goods	1	6
313	SDX LN	SONDEX PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in		2	No	TW/ LN Equity	Consumer Goods	1	6

									2007							
314	SIA LN	SOCO INTERNATIONAL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	TED LN Equity	Consumer Goods	1	6
315	TLW LN	TULLOW OIL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	TCY LN Equity	Technology	6	4
316	UKC LN	UK COAL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	TEP LN Equity	Telecommunications	6	6
317	VPC LN	VENTURE PRODUCTION PLC	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	Died in 2009		4	Yes	TSCO LN Equity	Consumer Services	2	6
318	WG/ LN	WOOD GROUP (JOHN) PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	TCG LN Equity	Consumer Services	2	4
319	3564296Q LN	ABBOT GROUP LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	TRIL LN Equity	Consumer Services	2	4
320	4082743Q LN	RADSTONE TECHNOLOGY PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	THT LN Equity	Consumer Services	2	6
321	9408593Q LN	ARRIVA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010	Yes	5	Yes	TOMK LN Equity	Industrials	4	5
322	AAT LN	AEA TECHNOLOGY GROUP PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	TPT LN Equity	Consumer Services	2	6
323	ABP LN	ASSOCIATED BRITISH PORTS	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006	Yes	1	No	TPK LN Equity	Industrials	4	6
324	ACL LN	ACAL PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	TRB LN Equity	Industrials	4	6
325	AGC LN	AGCERT INTERNATIONAL	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	TNI LN Equity	Consumer Services	2	6
326	BA/ LN	BAE SYSTEMS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	TTG LN Equity	Industrials	4	6
327	BAA LN	BAA AIRPORTS LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	TT/ LN Equity	Consumer Services	2	4

328	BBA LN	BBA AVIATION PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	TLW LN Equity	Oil & Gas	5	6
329	BBY LN	BALFOUR BEATTY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	UBM LN Equity	Consumer Services	2	6
330	BIOM LN	BIOME TECHNOLOGIES PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	UKC LN Equity	Basic Materials	0	6
331	BMS LN	BRAEMAR SHIPPING SERVICES PL	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	UKM LN Equity	Industrials	4	6
332	BOY LN	BODYCOTE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	ULE LN Equity	Industrials	4	6
333	BPI LN	BRITISH POLYTHENE INDUSTRIES	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	UMC LN Equity	Industrials	4	6
334	CHG LN	CHEMRING GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	ULVR LN Equity	Consumer Goods	1	6
335	CHLD LN	CHLORIDE GROUP LTD	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes	UU/ LN Equity	Utilities	7	6
336	CHTR LN	CHARTER INTERNATIONAL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	UTV LN Equity	Consumer Services	2	6
337	CKN LN	CLARKSON PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	VEC LN Equity	Health Care	3	4
338	CKSN LN	COOKSON GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	VED LN Equity	Basic Materials	0	6
339	CLLN LN	CARILLION PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	VPC LN Equity	Oil & Gas	5	4
340	COB LN	COBHAM PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	VCT LN Equity	Basic Materials	0	6
341	COST LN	COSTAIN GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	VTC LN Equity	Industrials	4	6
342	CTO LN	CLARKE (T.) PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	VOD LN Equity	Telecommunications	6	6
343	DIA LN	DIALIGHT PLC	**Yes**	**No**	**No**	**No**	**No**	**Yes**	Died in 2006		2	No	VP/ LN Equity	Industrials	4	6
344	DXS LN	DX SERVICES LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	VTG LN Equity	Industrials	4	5

345	DYS LN	DYSON GROUP PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	WEIR LN Equity	Industrials	4	6
346	ECM LN	ELECTROCOMPONENTS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	WSM LN Equity	Oil & Gas	5	4
347	ENO LN	ENODIS LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No	JDW LN Equity	Consumer Services	2	6
348	ETL LN	EUROTUNNEL PLC-UTS REGD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No	SMWH LN Equity	Consumer Services	2	5
349	FENR LN	FENNER PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	WTB LN Equity	Consumer Services	2	6
350	FGP LN	FIRSTGROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	WMH LN Equity	Consumer Services	2	6
351	FKI LN	FKI PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008	Yes	3	No	WIL LN Equity	Consumer Services	2	6
352	FSJ LN	FISHER (JAMES) & SONS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	WIN LN Equity	Industrials	4	6
353	GFRD LN	GALLIFORD TRY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	MRW LN Equity	Consumer Services	2	6
354	GLE LN	GLEESON (M.J.) GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	WLF LN Equity	Technology	6	6
355	GOG LN	GO-AHEAD GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	WOS LN Equity	Industrials	4	6
356	HILS LN	HILL & SMITH HOLDINGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	WG/ LN Equity	Oil & Gas	5	6
357	HLMA LN	HALMA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	WPP LN Equity	Consumer Services	2	6
358	HNS LN	HANSON LTD	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	WSH LN Equity	Industrials	4	6
359	HRN LN	HORNBY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes	WYG LN Equity	Industrials	4	4
360	HYWD LN	HEYWOOD WILLIAMS GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	XCH LN Equity	Industrials	4	4

361	IMI LN	IMI PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	XTA LN Equity	Basic Materials	0	6
362	ISYS LN	INVENSYS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes	YELL LN Equity	Consumer Services	2	6
363	JSP LN	JESSOPS PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No	YULC LN Equity	Basic Materials	0	6
364	KEL LN	KELDA GROUP LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No				
365	KIE LN	KIER GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes				
366	KLR LN	KELLER GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes				
367	MCA LN	ALFRED MCALPINE PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008	Yes	3	No				
368	MCHL LN	MOUCHEL GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes				
369	MGCR LN	MORGAN CRUCIBLE COMPANY PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes				
370	MGGT LN	MEGGITT PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes				
371	MGNS LN	MORGAN SINDALL GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes				
372	MRX LN	METALRAX GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No				
373	MSLH LN	MARSHALLS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes				
374	MWLM LN	CARILLION JM LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No				
375	NEX LN	NATIONAL EXPRESS GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes				
376	OXIG LN	OXFORD INSTRUMENTS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes				
377	PFL LN	PREMIER FARNELL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes				

378	PHTM LN	PHOTO-ME INTERNATIONAL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
379	PILK LN	PILKINGTON GROUP LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No
380	PO/ LN	PENINSULAR & ORIENTAL STEAM	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No
381	RAY LN	RAYMARINE PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No
382	RCDO LN	RICARDO PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
383	REX LN	REXAM PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
384	ROK LN	ROK PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes
385	ROR LN	ROTORK PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
386	RPC LN	RPC GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
387	RR/ LN	ROLLS-ROYCE HOLDINGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
388	RSW LN	RENISHAW PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
389	SFR LN	SEVERFIELD-ROWEN PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
390	SGC LN	STAGECOACH GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
391	SKS LN	SHANKS GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
392	SMIN LN	SMITHS GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
393	SNR LN	SENIOR PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
394	SPX LN	SPIRAX-SARCO ENGINEERING PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
395	SXS LN	SPECTRIS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes

396	TDG LN	TDG LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No
397	TOMK LN	TOMKINS LTD	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes
398	TTG LN	TT ELECTRONICS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
399	UKM LN	UK MAIL GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
400	ULE LN	ULTRA ELECTRONICS HLDGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
401	UMC LN	UMECO PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
402	VTC LN	VITEC GROUP PLC/THE	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
403	VTG LN	VT GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010	Yes	5	Yes
404	WEIR LN	WEIR GROUP PLC/THE	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
405	WHM LN	WHATMAN LTD	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No
406	WSH LN	WSP GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
407	WYG LN	WYG PLC	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	Died in 2009		4	Yes
408	AIE LN	ANITE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
409	ARM LN	ARM HOLDINGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
410	AU/ LN	AUTONOMY CORP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
411	AVV LN	AVEVA GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
412	AXO LN	AXON GROUP PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in		3	No

									2008			
413	CCC LN	COMPUTACENTER PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
414	CSR LN	CSR PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
415	DDT LN	DIMENSION DATA HOLDINGS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010	Yes	5	Yes
416	DNO LN	DOMINO PRINTING SCIENCES PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
417	E2V LN	E2V TECHNOLOGIES PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
418	EID LN	EIDOS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	Died in 2009	Yes	4	Yes
419	FDSA LN	FIDESSA GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
420	ICM LN	ICM COMPUTER GROUP PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No
421	IMG LN	IMAGINATION TECH GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
422	IOT LN	ISOFT GROUP PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007	Yes	2	No
423	ITL LN	INTEC TELECOM SYSTEMS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Died in 2010		5	Yes
424	KFX LN	KOFAX PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
425	LOG LN	LOGICA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
426	MCRO LN	MICRO FOCUS INTERNATIONAL	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
427	MOR LN	MORSE PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008	Yes	3	No

428	MSY LN	MISYS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
429	NIS LN	NORTHGATE INFO SOLUTIONS HOL	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No
430	NSB LN	NSB RETAIL SYSTEMS PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No
431	PLM LN	PLASMON PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No
432	PNX LN	PHOENIX IT GROUP LTD	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
433	PON LN	PSION PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
434	RM/ LN	RM PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
435	RTD LN	RETAIL DECISIONS PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No
436	SDL LN	SDL PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
437	SGE LN	SAGE GROUP PLC/THE	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
438	SRF LN	SURFCONTROL PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No
439	TIG LN	INNOVATION GROUP PLC	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	Died in 2008		5	Yes
440	WLF LN	WOLFSON MICROELECTRONICS PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
441	XAN LN	XANSA PLC	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007	Yes	2	No
442	XAR LN	XAAR PLC	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	Died in 2008		3	No

443	ZTX LN	DIODES ZETEX LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No
444	AWG LN	AWG PARENT CO LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No
445	BGY LN	BRITISH ENERGY GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	Died in 2009		4	Yes
446	BWG LN	BRISTOL WATER GROUP PLC	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No
447	CNA LN	CENTRICA PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
448	IPR LN	INTERNATIONAL POWER PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
449	NG/ LN	NATIONAL GRID PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
450	NWG LN	NORTHUMBRIAN WATER GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
451	PNN LN	PENNON GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
452	SPW LN	SCOTTISH POWER LTD	**Yes**	**Yes**	**No**	**No**	**No**	**No**	Died in 2007		2	No
453	SSE LN	SSE PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
454	SVT LN	SEVERN TRENT PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived	Yes	6	Yes
455	UU/ LN	UNITED UTILITIES GROUP PLC	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	Survived		6	Yes
456	VRD LN	VIRIDIAN GROUP LTD	**Yes**	**No**	**No**	**No**	**No**	**No**	Died in 2006		1	No
457	HOC LN	HOCHSCHILD MINING PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes

458	CRE LN	CRESTON PLC	**No**	**Yes**	**No**	**No**	**No**	**No**	Born in 2006 then died		1	No
459	NWS LN	SMITHS NEWS PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
460	RMV LN	RIGHTMOVE PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
461	VLK LN	VISLINK PLC	**No**	**Yes**	**Yes**	**No**	**No**	**No**	Born in 2006 then died		2	No
462	ACE LN	ACCIDENT EXCHANGE GROUP PLC	**No**	**Yes**	**No**	**No**	**No**	**No**	Born in 2006 then died		1	No
463	DEB LN	DEBENHAMS PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*	Yes	5	Yes
464	DNLM LN	DUNELM GROUP PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
465	FWEB LN	FIBERWEB PLC	**No**	**Yes**	**No**	**No**	**Yes**	**Yes**	Born in 2006 then died		3	No
466	HOME LN	HOME RETAIL GROUP	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
467	HRG LN	HOGG ROBINSON GROUP PLC	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	Born in 2006 then died		4	Yes
468	MNGS LN	MANGANESE BRONZE HLDGS PLC	**No**	**Yes**	**Yes**	**No**	**No**	**No**	Born in 2006 then died		2	No

469	SMWH LN	WH SMITH PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*	Yes	5	Yes
470	AGR LN	ASSURA GROUP LTD	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
471	ASM LN	ANTISOMA PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Born in 2006 then died		4	Yes
472	BVIC LN	BRITVIC PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
473	CHW LN	CHIME COMMUNICATIONS PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
474	CNT LN	CONNAUGHT PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Born in 2006 then died		4	Yes
475	EXPN LN	EXPERIAN PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
476	FOUR LN	4IMPRINT GROUP PLC	**No**	**Yes**	**No**	**No**	**No**	**No**	Born in 2006 then died		1	No
477	LVD LN	LAVENDON GROUP PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
478	NAE LN	NORD ANGLIA EDUCATION PLC	**No**	**Yes**	**Yes**	**No**	**No**	**No**	Born in 2006 then died		2	No
479	OPD LN	OPD GROUP PLC	**No**	**Yes**	**No**	**No**	**No**	**No**	Born in 2006 then died		1	No

480	OPTS LN	OPTOS PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
481	PURI LN	PURICORE PLC	**No**	**Yes**	**No**	**No**	**No**	**No**	Born in 2006 then died		1	No
482	QQ/ LN	QINETIQ GROUP PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
483	RE/ LN	R.E.A. HOLDINGS PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
484	RNVO LN	RENOVO GROUP PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
485	SCHE LN	SOUTHERN CROSS HEALTHCARE	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
486	STHR LN	STHREE PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
487	STY LN	STYLES & WOOD GROUP PLC	**No**	**Yes**	**Yes**	**No**	**No**	**No**	Born in 2006 then died		2	No
488	DRX LN	DRAX GROUP PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
489	ABU LN	ABACUS GROUP PLC	**No**	**Yes**	**No**	**No**	**No**	**No**	Born in 2006 then died		1	No
490	BIFF LN	BIFFA LTD	**No**	**Yes**	**Yes**	**No**	**No**	**No**	Born in 2006 then died		2	No

491	GPRT LN	GOLDENPORT HOLDINGS INC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
492	HAMP LN	HAMPSON INDUSTRIES PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
493	LTC LN	LATCHWAYS PLC	**No**	**Yes**	**Yes**	**No**	**No**	**No**	Born in 2006 then died		2	No
494	MRO LN	MELROSE PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
495	STOB LN	STOBART GROUP LTD	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2006*		5	Yes
496	SWG LN	SCOTT WILSON GROUP PLC	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	Born in 2006 then died		4	Yes
497	CNP LN	CLINPHONE PLC	**No**	**Yes**	**No**	**No**	**No**	**No**	Born in 2006 then died		1	No
498	8209360Q LN	ARICOM PLC	**No**	**No**	**Yes**	**Yes**	**No**	**No**	Born in 2007 then died		2	No
499	CRND LN	CENTRAL RAND GOLD LTD	**No**	**No**	**Yes**	**Yes**	**Yes**	**No**	Born in 2007 then died		3	No
500	FXPO LN	FERREXPO PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
501	GEMD LN	GEM DIAMONDS LTD	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes

502	IFL LN	INTERNATIONAL FERRO METALS	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
503	MNDI LN	MONDI PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
504	TALV LN	TALVIVAARA MINING CO PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
505	MONY LN	MONEYSUPERMARKET.COM	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
506	SEPU LN	SEPURA LTD	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
507	TCY LN	TELECITY GROUP PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
508	CINE LN	CINEWORLD GROUP PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
509	SAFE LN	SAFESTORE HOLDINGS PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
510	SPD LN	SPORTS DIRECT INTERNATIONAL	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
511	SPO LN	SPORTECH PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
512	TCG LN	THOMAS COOK GROUP PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
513	TT/ LN	TUI TRAVEL PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
514	GNS LN	GENUS PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes

515	HFG LN	HILTON FOOD GROUP LTD	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
516	VEC LN	VECTURA GROUP PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
517	XCH LN	XCHANGING PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
518	EAGA LN	CARILLION ENERGY SERVICES	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
519	IEC LN	IMPERIAL ENERGY CORP PLC	**No**	**No**	**Yes**	**Yes**	**No**	**No**	Born in 2007 then died		2	No
520	SMDR LN	SALAMANDER ENERGY PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
521	WSM LN	WELLSTREAM HOLDINGS PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
522	AIP LN	AIR PARTNER PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**No**	Born in 2007 then died		3	No
523	NXR LN	NORCROS PLC	**No**	**No**	**Yes**	**No**	**No**	**No**	Born in 2007 then died		1	No
524	SPGH LN	SUPERGLASS HOLDINGS PLC	**No**	**No**	**Yes**	**No**	**No**	**No**	Born in 2007 then died		1	No
525	NCC LN	NCC GROUP PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes

526	PVCS LN	PV CRYSTALOX SOLAR PLC	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	*survived from 2007*		4	Yes
527	ENRC LN	EURASIAN NATURAL RESOURCES	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	*survived from 2008*		3	No
528	FRES LN	FRESNILLO PLC	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	*survived from 2008*		3	No
529	NAD LN	NAMAKWA DIAMONDS LTD	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	*survived from 2008*		3	No
530	DOM LN	DOMINO'S PIZZA UK & IRL PLC	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	*survived from 2008*		3	No
531	MER LN	MEARS GROUP PLC	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	*survived from 2008*		3	No
532	SPI LN	ENSERVE GROUP LTD	**No**	**No**	**No**	**Yes**	**Yes**	**No**	Born in 2008 then died		2	No
533	SYR LN	SYNERGY HEALTH PLC	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	*survived from 2008*		3	No
534	CAD LN	CADOGAN PETROLEUM PLC	**No**	**No**	**No**	**Yes**	**Yes**	**No**	Born in 2008 then died		2	No
535	HDY LN	HARDY OIL & GAS PLC	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	*survived from 2008*		3	No
536	HOIL LN	HERITAGE OIL PLC	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	*survived from 2008*		3	No
537	LAM LN	LAMPRELL PLC	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	*survived from 2008*		3	No

538	GDWN LN	GOODWIN PLC	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	*survived from 2008*		3	No
539	POG LN	PETROPAVLOVSK PLC	**No**	**No**	**No**	**No**	**Yes**	**Yes**	*survived from 2009*		2	No
540	MEC LN	MECOM GROUP PLC	**No**	**No**	**No**	**No**	**Yes**	**Yes**	*survived from 2009*		2	No
541	BOK LN	BOOKER GROUP PLC	**No**	**No**	**No**	**No**	**Yes**	**Yes**	*survived from 2009*		2	No
542	ALN LN	ALTERIAN PLC	**No**	**No**	**No**	**No**	**Yes**	**Yes**	*survived from 2009*		2	No
543	KWL LN	KEWILL PLC	**No**	**No**	**No**	**No**	**Yes**	**Yes**	*survived from 2009*		2	No
544	XPP LN	XP POWER LTD	**No**	**No**	**No**	**No**	**Yes**	**Yes**	*survived from 2009*		2	No
545	ABG LN	AFRICAN BARRICK GOLD PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
546	AZEM LN	AZ ELECTRONIC MATERIALS	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
547	CEY LN	CENTAMIN PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
548	KMR LN	KENMARE RESOURCES PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
549	CW/ LN	CABLE & WIRELESS WORLDWIDE	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
550	TALK LN	TALKTALK TELECOM GROUP	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No

551	BET LN	BETFAIR GROUP PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
552	SBT LN	SPORTINGBET PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
553	SGP LN	SUPERGROUP PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
554	CPP LN	CPP GROUP PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
555	OCDO LN	OCADO GROUP PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
556	SPH LN	SINCLAIR IS PHARMA PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
557	TNO LN	RSM TENON GROUP PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
558	AFR LN	AFREN PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
559	ENQ LN	ENQUEST PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
560	ESSR LN	ESSAR ENERGY PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
561	EXI LN	EXILLON ENERGY PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
562	CAR LN	CARCLO PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
563	HSN LN	HANSEN TRANSMISSIONS INT	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No

564	RNO LN	RENOLD PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
565	VLX LN	VOLEX PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No
566	PRW LN	PROMETHEAN WORLD PLC	**No**	**No**	**No**	**No**	**No**	**Yes**	*survived from 2010*		1	No

Appendix B

Appendices for chapter 3

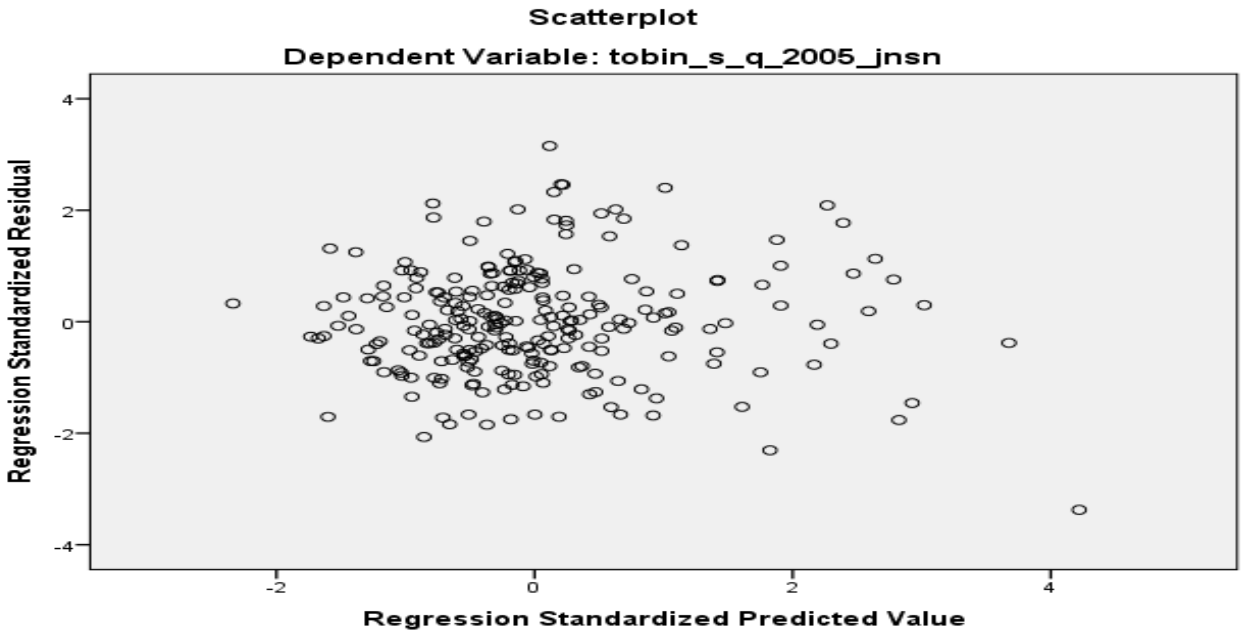
Appendix Ch. 3.1 Tobin's Q: Multicollinearity was not found to be present in these analyses due to all tolerances being below .20 and all variance inflation factors being below 5

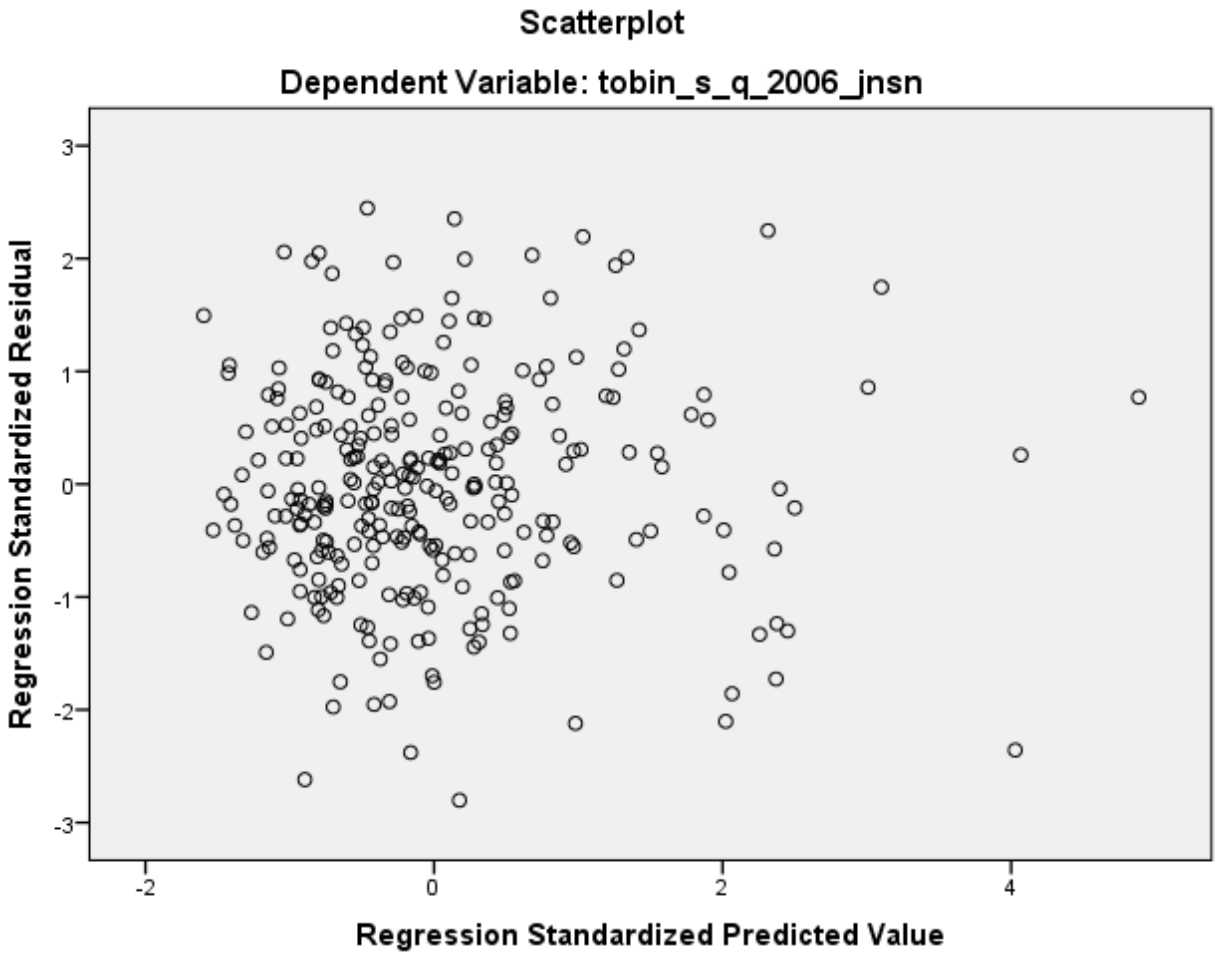
	2005		2006		2007		2008		2009		2010	
Variables	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**
DIRW	0.887	1.127	0.876	1.141	0.904	1.107	0.922	1.085	0.904	1.106	0.889	1.125
INDEP	0.862	1.16	0.842	1.188	0.85	1.177	0.841	1.189	0.882	1.133	0.784	1.275
BSIZE	0.599	1.67	0.593	1.686	0.621	1.61	0.6	1.666	0.569	1.759	0.679	1.473
EXCREM	0.808	1.238	0.737	1.357	0.673	1.486	0.696	1.437	0.756	1.323	0.712	1.404
ROLE	0.874	1.144	0.879	1.138	0.909	1.1	0.968	1.033	0.958	1.044	0.912	1.096
DEBT	0.855	1.17	0.856	1.168	0.827	1.209	0.794	1.259	0.863	1.159	0.835	1.197
DPOUT	0.955	1.047	0.99	1.01	0.911	1.098	0.982	1.018	0.967	1.034	0.918	1.089
AUD	0.919	1.088	0.932	1.073	0.883	1.132	0.832	1.653	0.969	1.032	0.961	1.041
Industry: Cons.Goods	0.416	2.404	0.402	2.488	0.403	2.479	0.416	2.404	0.413	2.424	0.403	2.483
Industry: Cons. Serv	0.27	3.709	0.241	4.154	0.25	3.993	0.259	3.859	0.268	3.732	0.252	3.966
Industry: Health Care	0.607	1.648	0.512	1.952	0.529	1.892	0.539	1.855	0.521	1.918	0.601	1.663
Industry: Industrials	0.25	4.001	0.23	4.353	0.23	4.348	0.233	4.292	0.236	4.243	0.231	4.331
Industry: Oil & Gas	0.548	1.824	0.516	1.939	0.531	1.884	0.537	1.863	0.547	1.827	0.545	1.834
Industry: Technology	0.434	2.305	0.39	2.562	0.402	2.487	0.394	2.54	0.414	2.417	0.41	2.439
Industry: Utilities	0.662	1.51	0.603	1.659	0.592	1.69	0.659	1.517	0.676	1.48	0.63	1.587
FSIZE	0.585	1.71	0.514	1.945	0.548	1.825	0.577	1.732	0.547	1.828	0.601	1.665

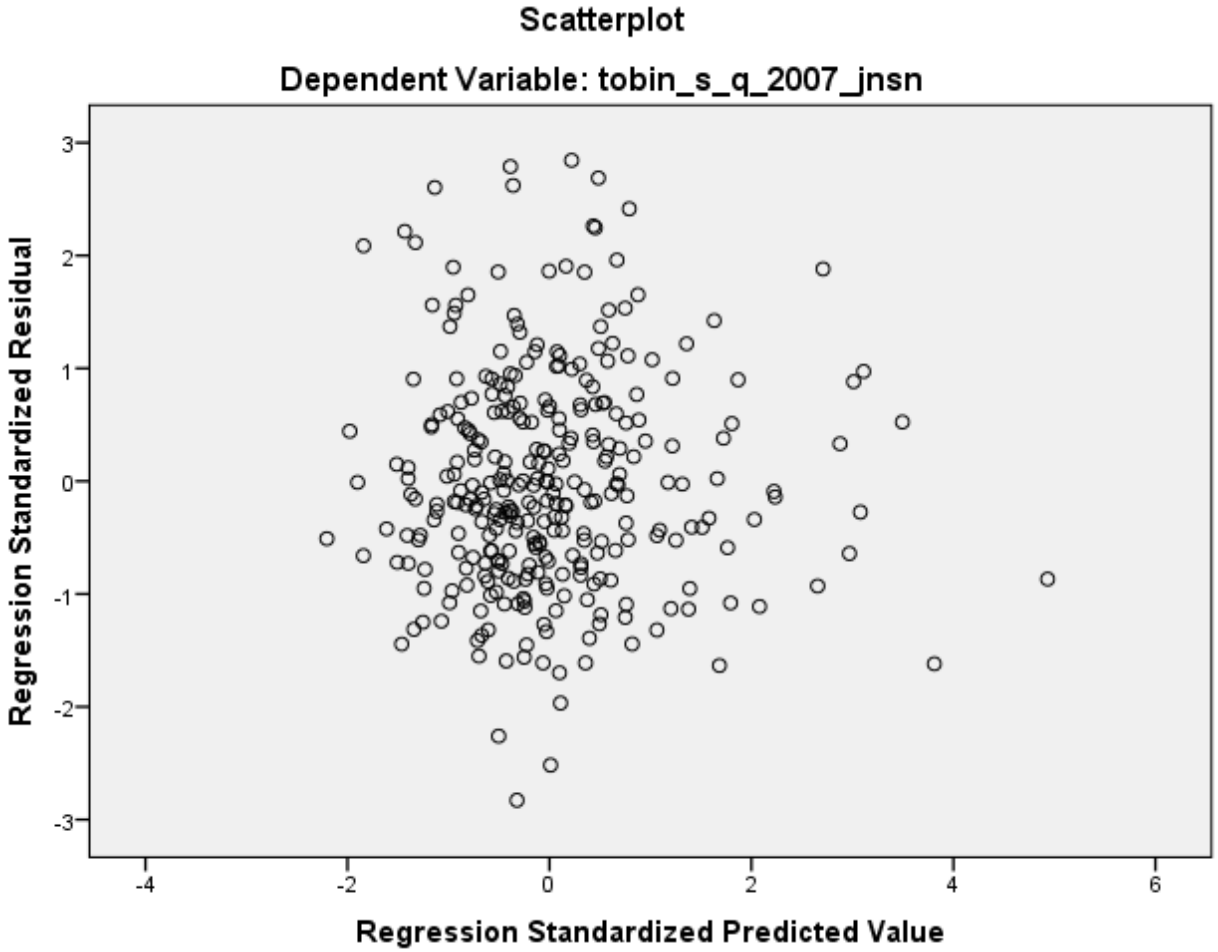
Appendix Ch.3.2 ROA: Multicollinearity was not found to be present in these analyses due to all tolerances being below .20 and all variance inflation factors being below 5.

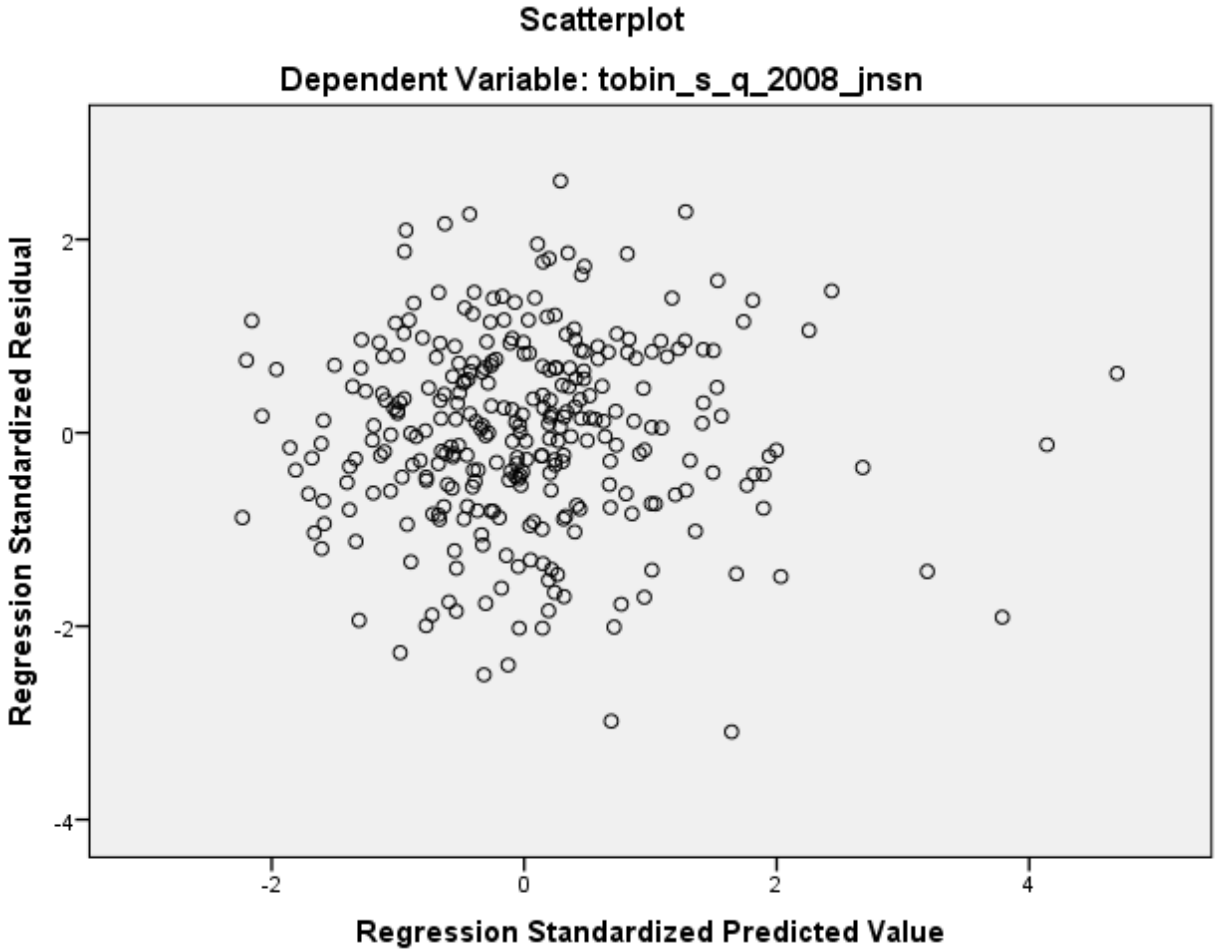
	2005		2006		2007		2008		2009		2010	
Variables	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**
DIRW	0.885	1.13	0.876	1.141	0.903	1.108	0.905	1.105	0.919	1.089	0.899	1.112
INDEP	0.864	1.157	0.855	1.17	0.826	1.211	0.82	1.22	0.895	1.118	0.794	1.26
BSIZE	0.603	1.657	0.577	1.732	0.594	1.683	0.574	1.743	0.563	1.777	0.679	1.473
EXCREM	0.81	1.235	0.718	1.394	0.671	1.491	0.663	1.508	0.757	1.321	0.707	1.415
ROLE	0.874	1.144	0.875	1.143	0.909	1.101	0.969	1.033	0.959	1.042	0.912	1.097
DEBT	0.858	1.165	0.828	1.207	0.803	1.246	0.777	1.286	0.837	1.195	0.814	1.229
DPOUT	0.955	1.047	0.99	1.01	0.903	1.108	0.971	1.03	0.969	1.032	0.922	1.084
AUD	0.918	1.09	0.93	1.075	0.881	1.135	0.422	2.368	0.97	1.031	0.951	1.051
Industry: Cons.Goods	0.424	2.359	0.403	2.481	0.429	2.333	0.268	3.731	0.425	2.351	0.437	2.287
Industry: Cons. Serv	0.272	3.676	0.253	3.958	0.27	3.701	0.578	1.732	0.279	3.582	0.277	3.614
Industry: Health Care	0.607	1.648	0.552	1.81	0.58	1.724	0.243	4.122	0.575	1.741	0.629	1.59
Industry: Industrials	0.251	3.986	0.233	4.288	0.246	4.067	0.538	1.859	0.255	3.928	0.251	3.976
Industry: Oil & Gas	0.548	1.823	0.529	1.889	0.545	1.834	0.409	2.443	0.561	1.783	0.558	1.793
Industry: Technology	0.434	2.304	0.391	2.554	0.419	2.387	0.659	1.518	0.434	2.305	0.432	2.312
Industry: Utilities	0.662	1.51	0.603	1.659	0.59	1.696	0.57	1.755	0.685	1.461	0.637	1.569
FSIZE	0.59	1.695	0.517	1.933	0.547	1.829	0.905	1.105	0.551	1.815	0.61	1.641

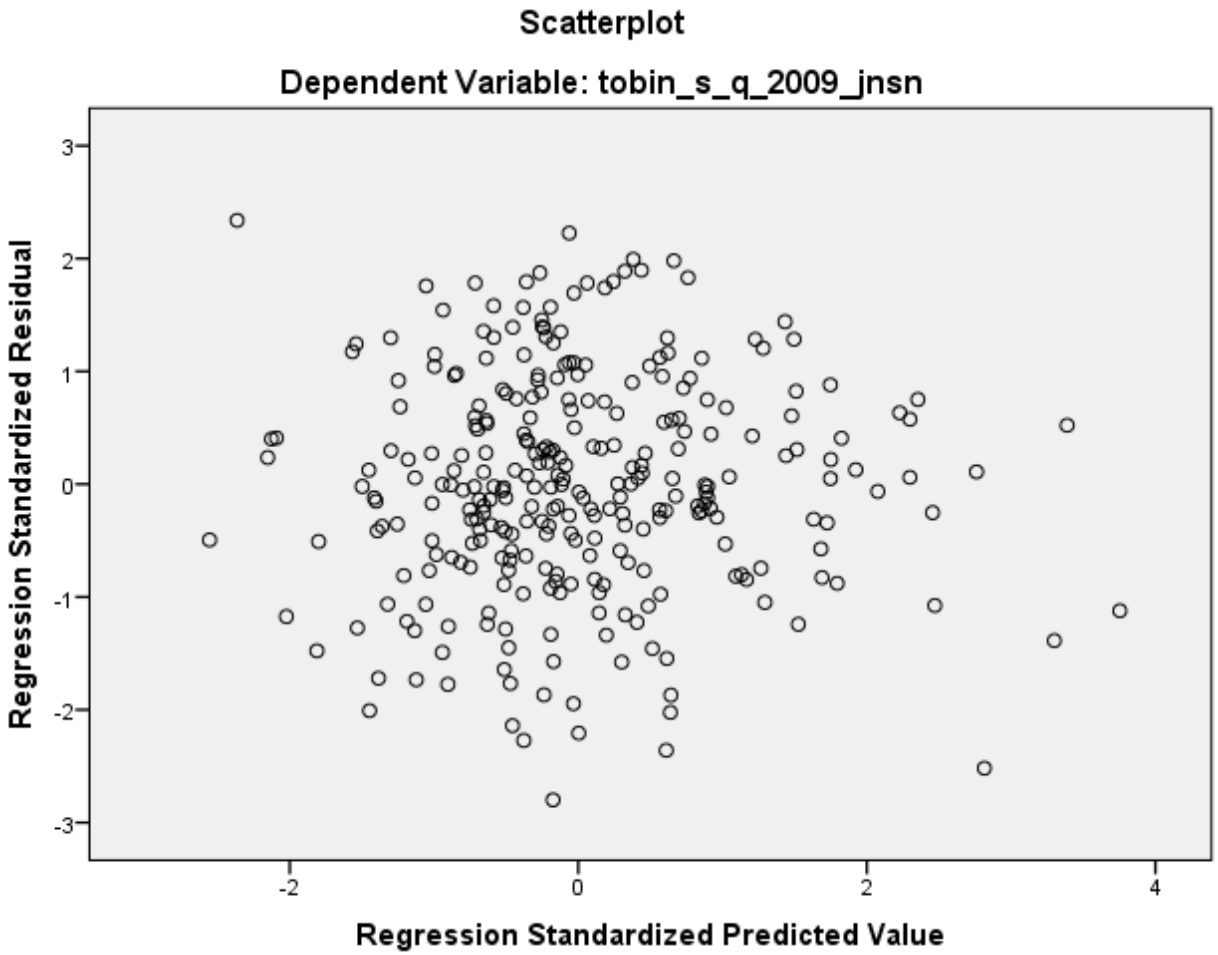
Appendix Ch. 3.3 Tobin's Q: Homoscedasticity was verified in all analyses through the construction of scatterplots of the regression standardized residuals and regression standardized predicted values

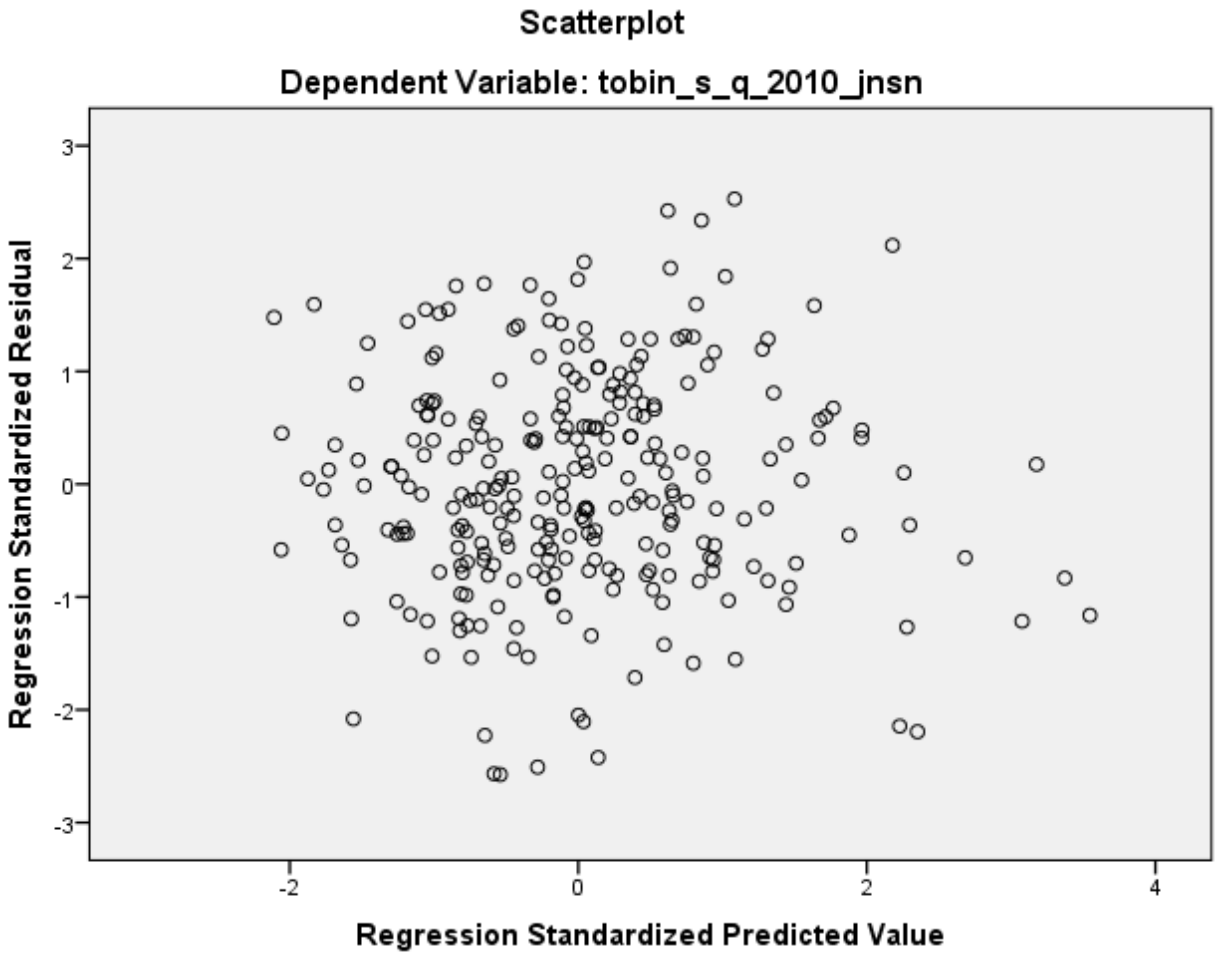



Scatterplot
Dependent Variable: tobin_s_q_2006_jnsn
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-2
0
2
4

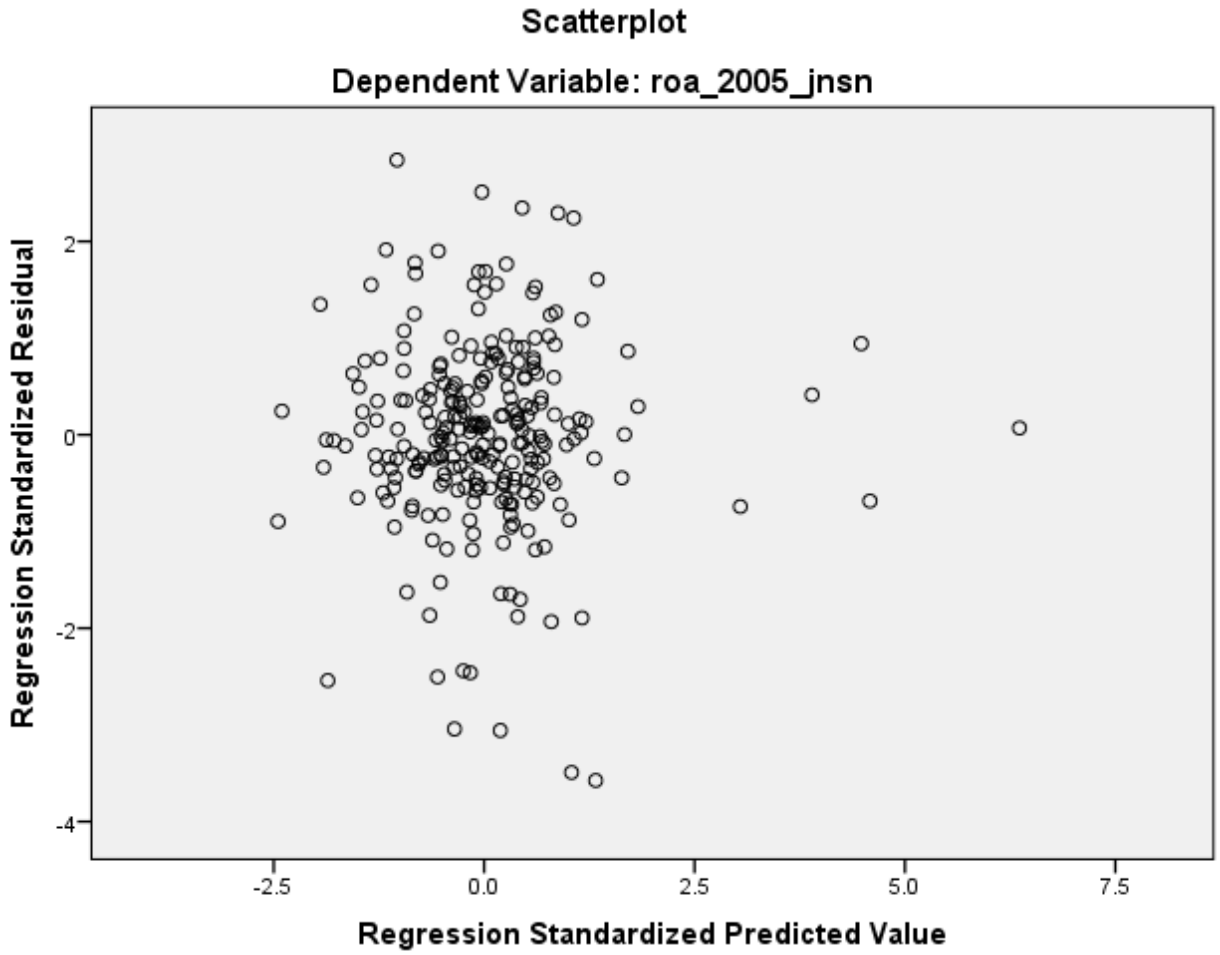

Scatterplot
Dependent Variable: tobin_s_q_2007_jnsn
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-4
-2
0
2
4
6

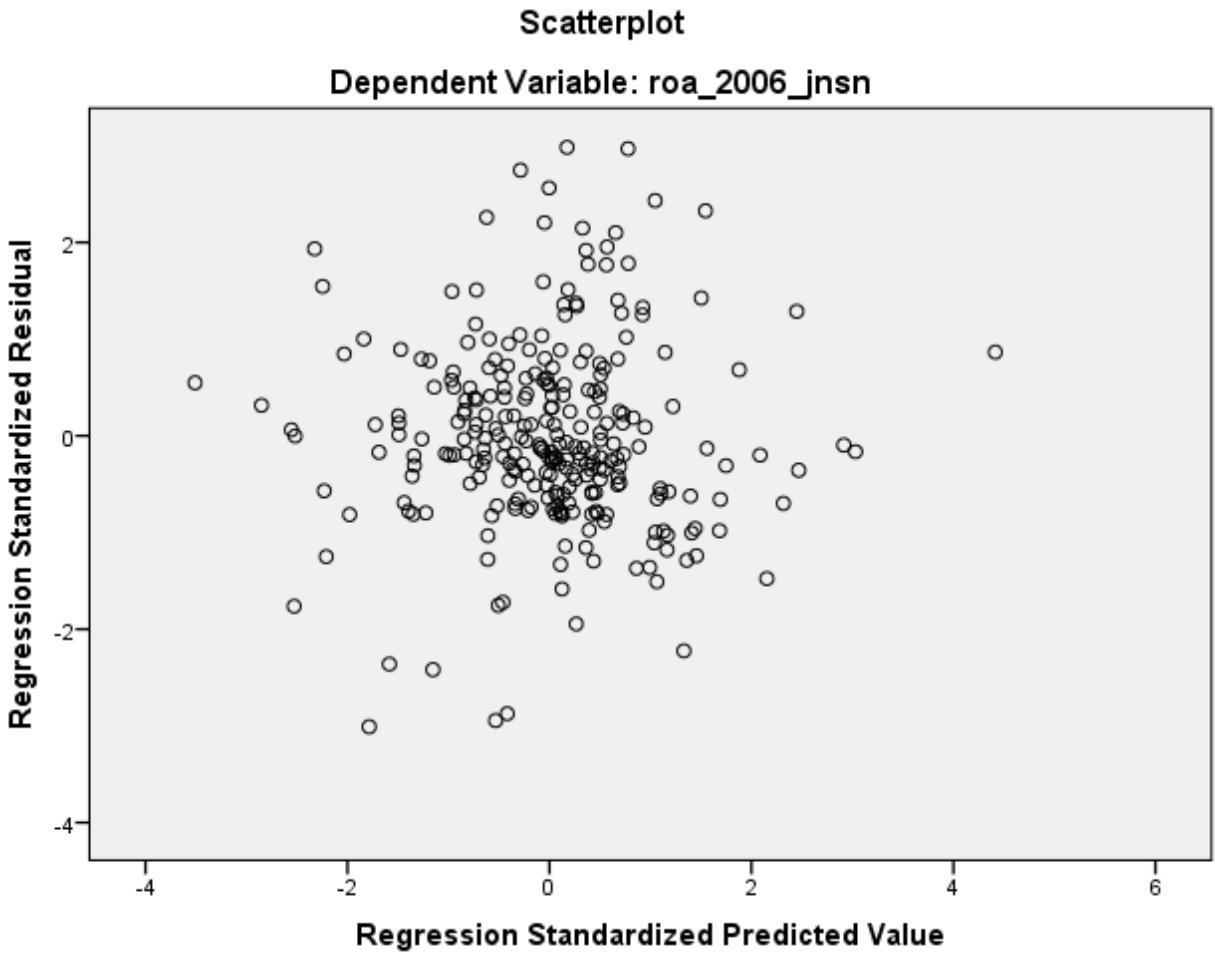

Scatterplot
Dependent Variable: tobin_s_q_2008_jnsn
Regression Standardized Residual
2
0
-2
-4
-2
0
2
4
Regression Standardized Predicted Value

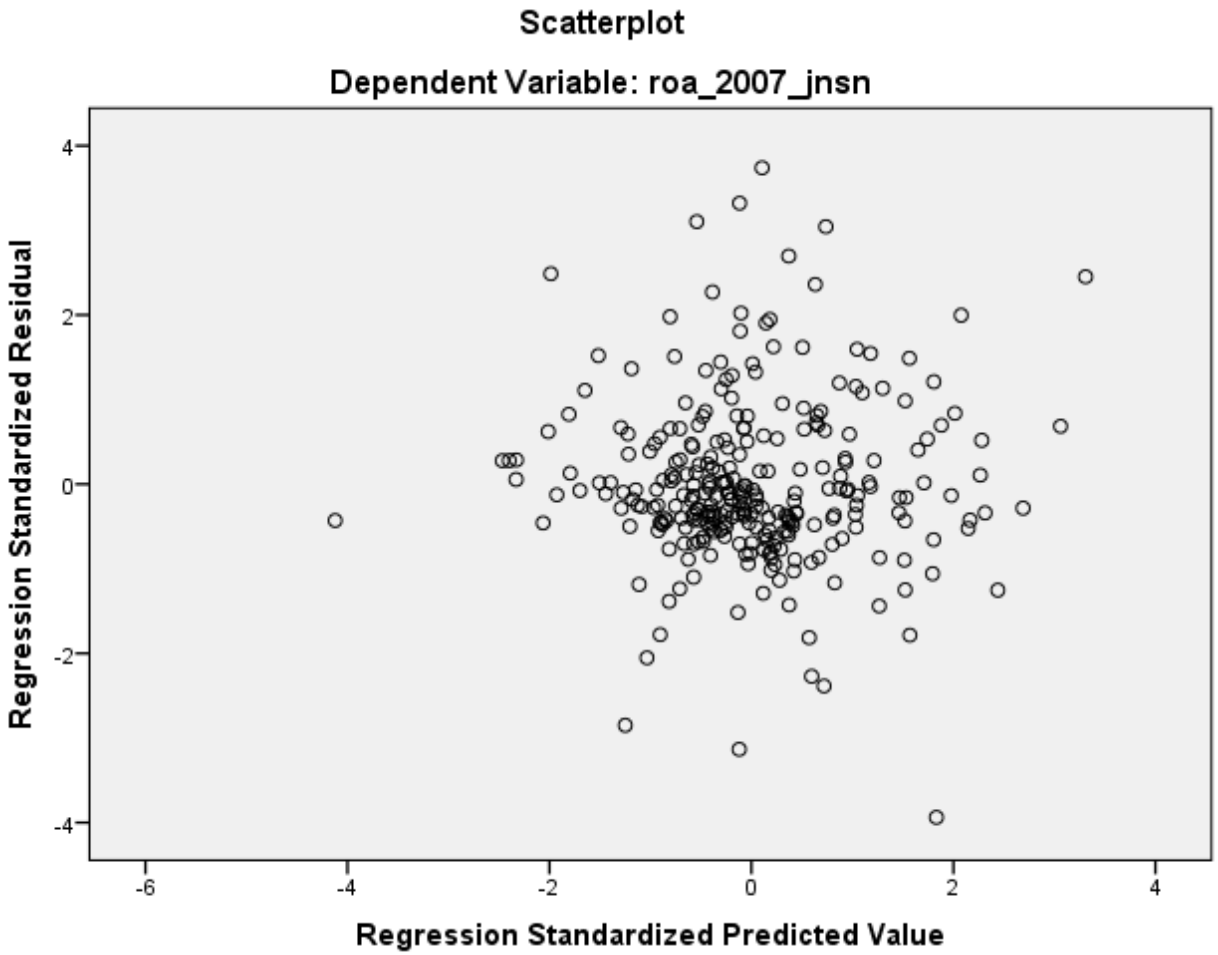

Scatterplot
Dependent Variable: tobin_s_q_2009_jnsn
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-2
0
2
4

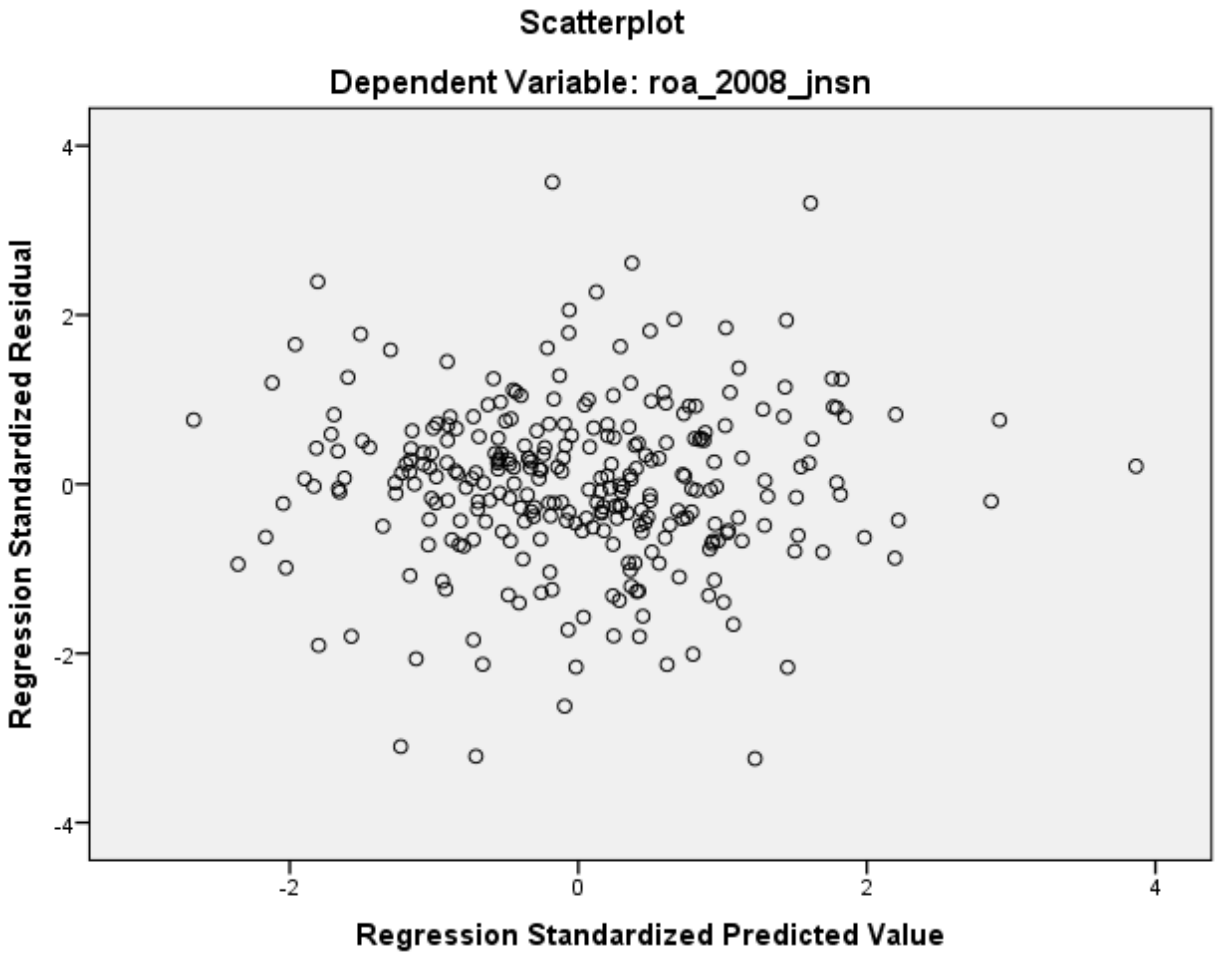

Scatterplot
Dependent Variable: tobin_s_q_2010_jnsn
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-2
0
2
4

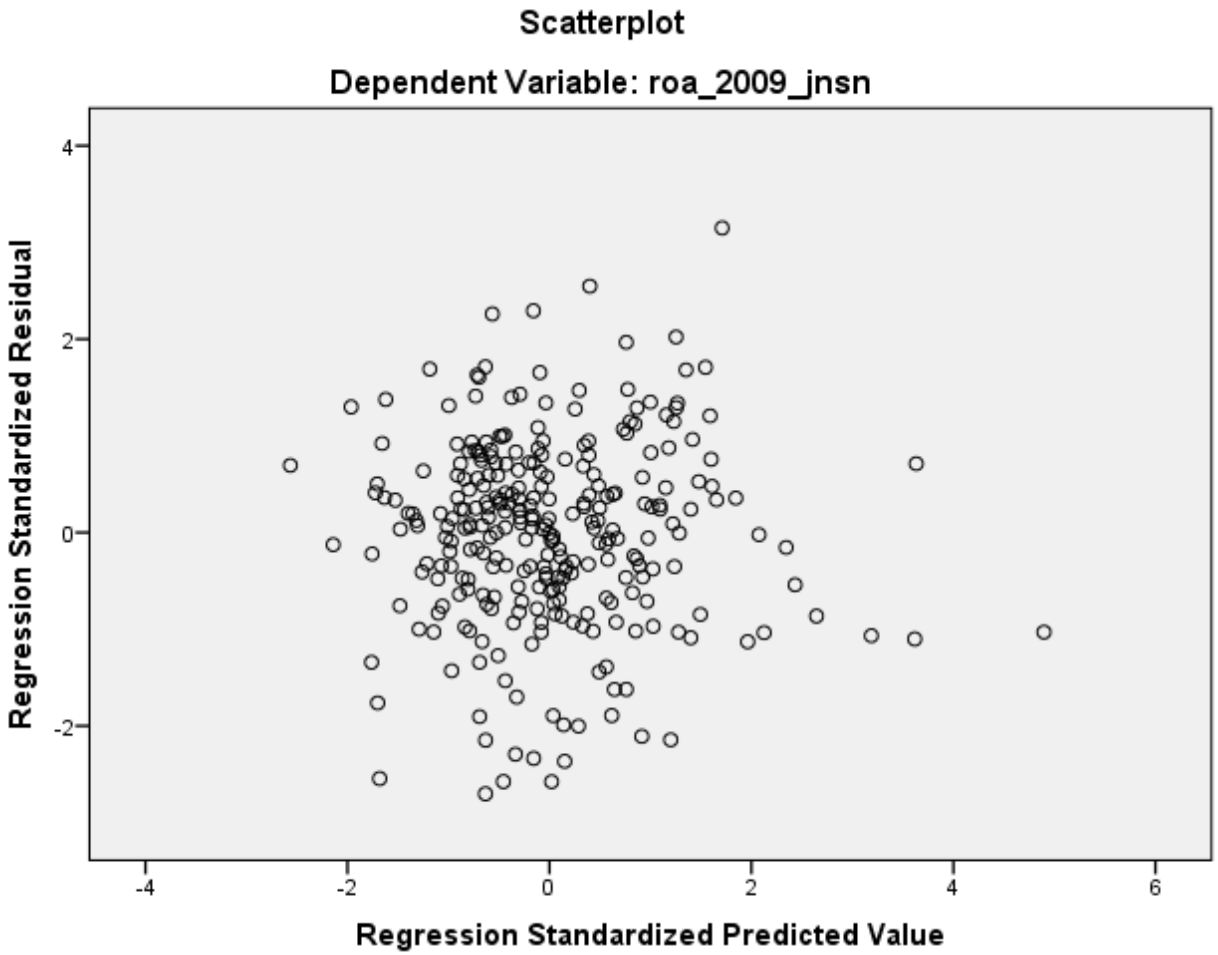
Appendix Ch. 3.4 Tobin's Q: Homoscedasticity was verified in all analyses through the construction of scatterplots of the regression standardized residuals and regression standardized predicted values

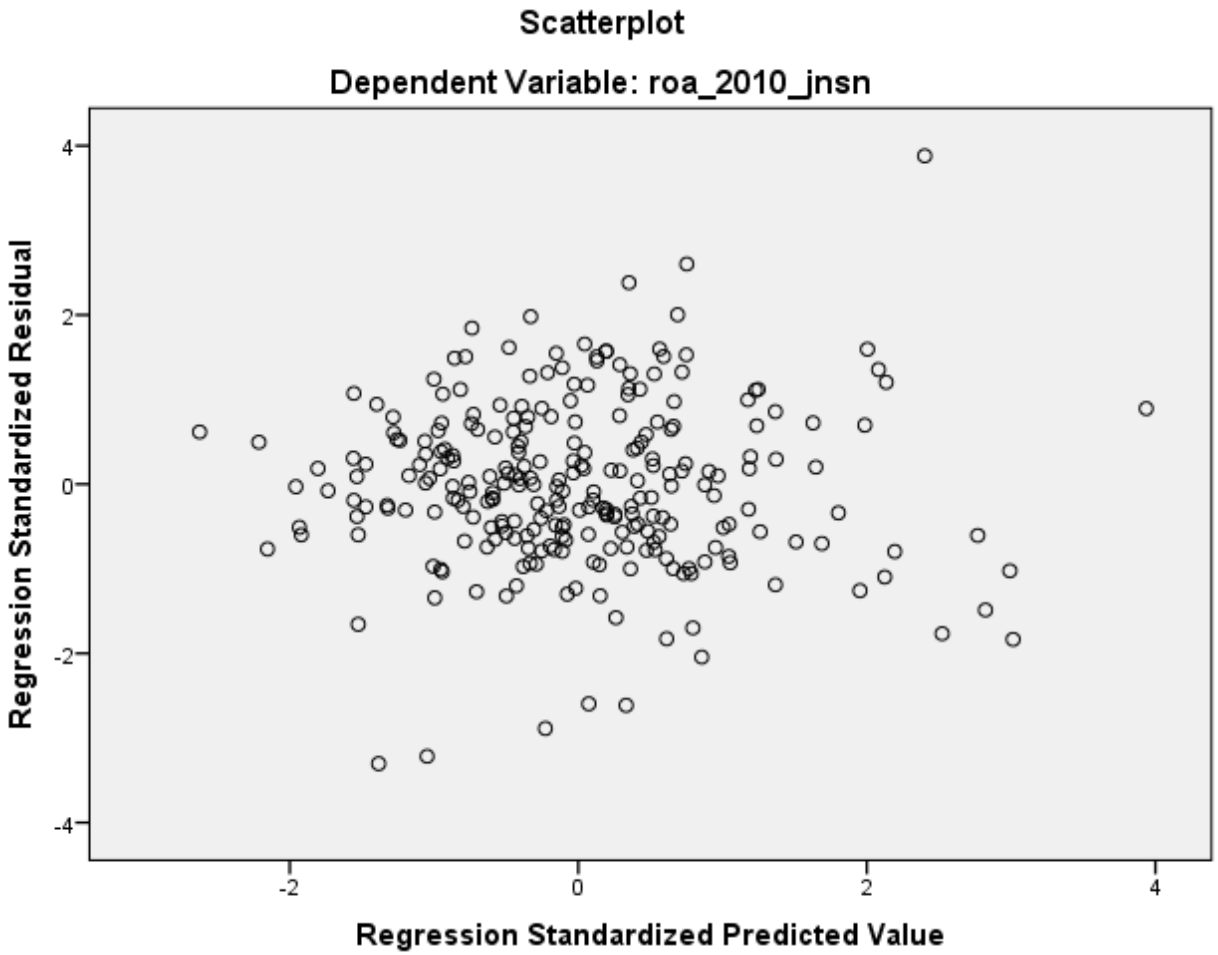



Scatterplot
Dependent Variable: roa_2006_jnsn
Regression Standardized Residual
Regression Standardized Predicted Value
2
0
-2
-4
-4
-2
0
2
4
6

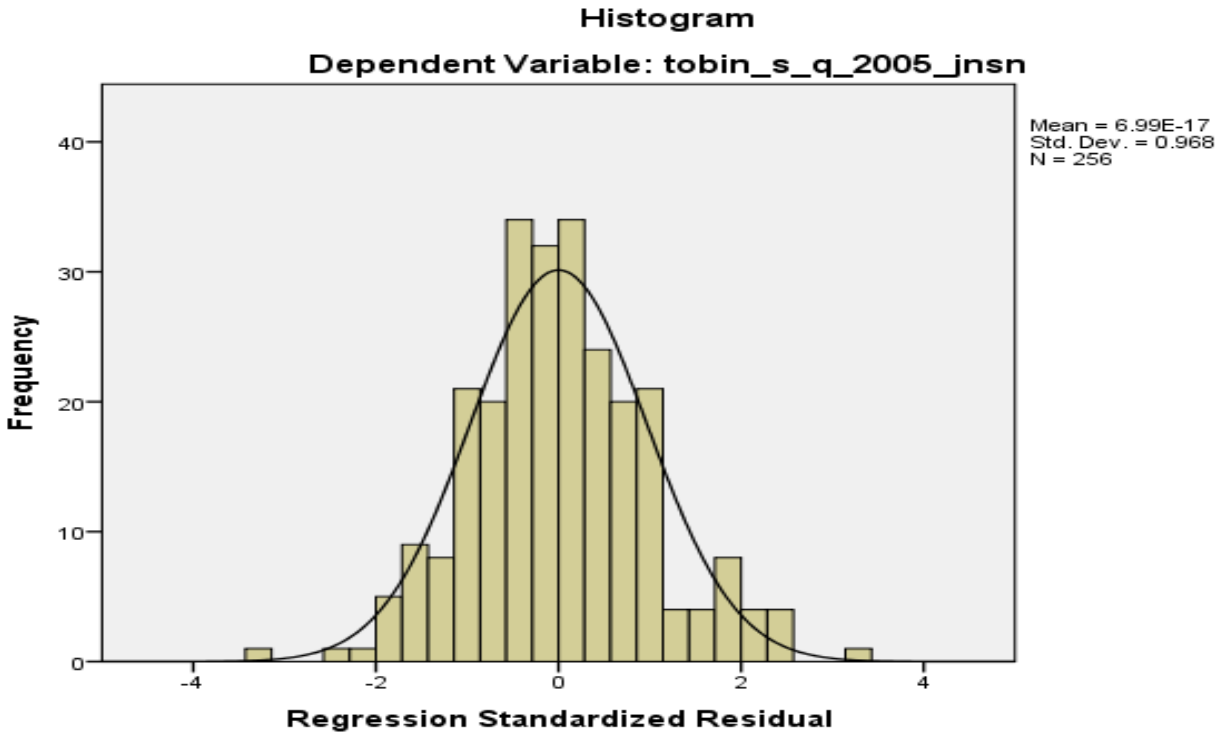

Scatterplot
Dependent Variable: roa_2007_jnsn
Regression Standardized Residual
Regression Standardized Predicted Value
4
2
0
-2
-4
-6
-4
-2
0
2
4

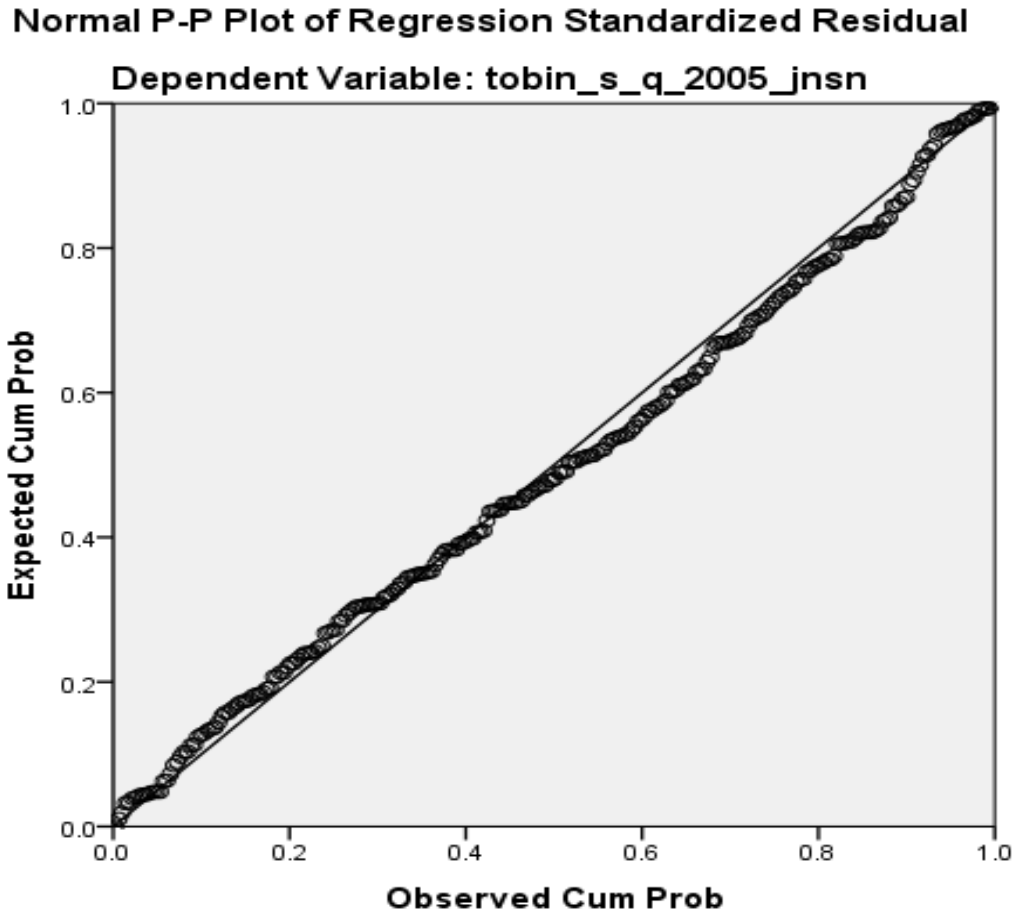

Scatterplot
Dependent Variable: roa_2008_jnsn
Regression Standardized Residual
Regression Standardized Predicted Value
4
2
0
-2
-4
-2
0
2
4

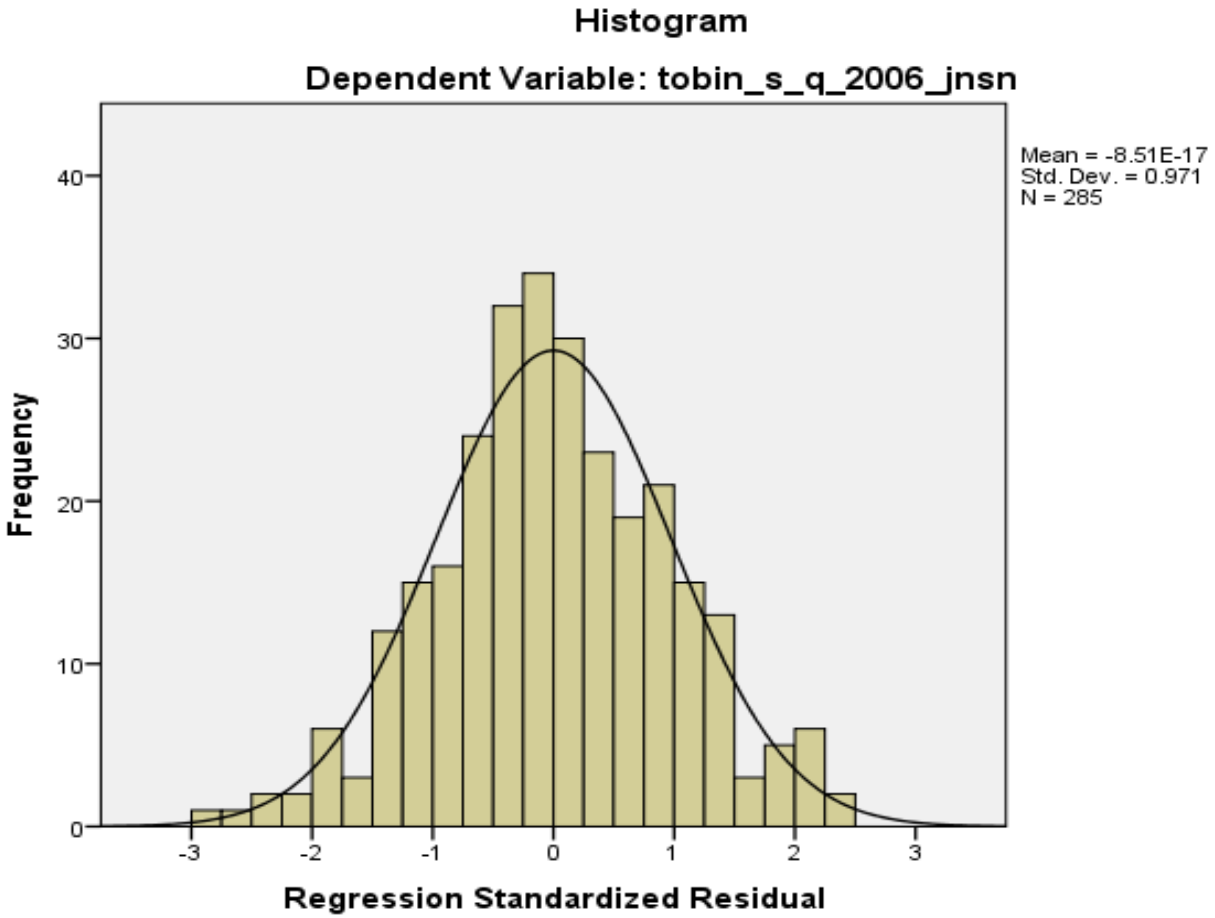

Scatterplot
Dependent Variable: roa_2009_jnsn
Regression Standardized Residual
Regression Standardized Predicted Value
4
2
0
-2
-4
-2
0
2
4
6

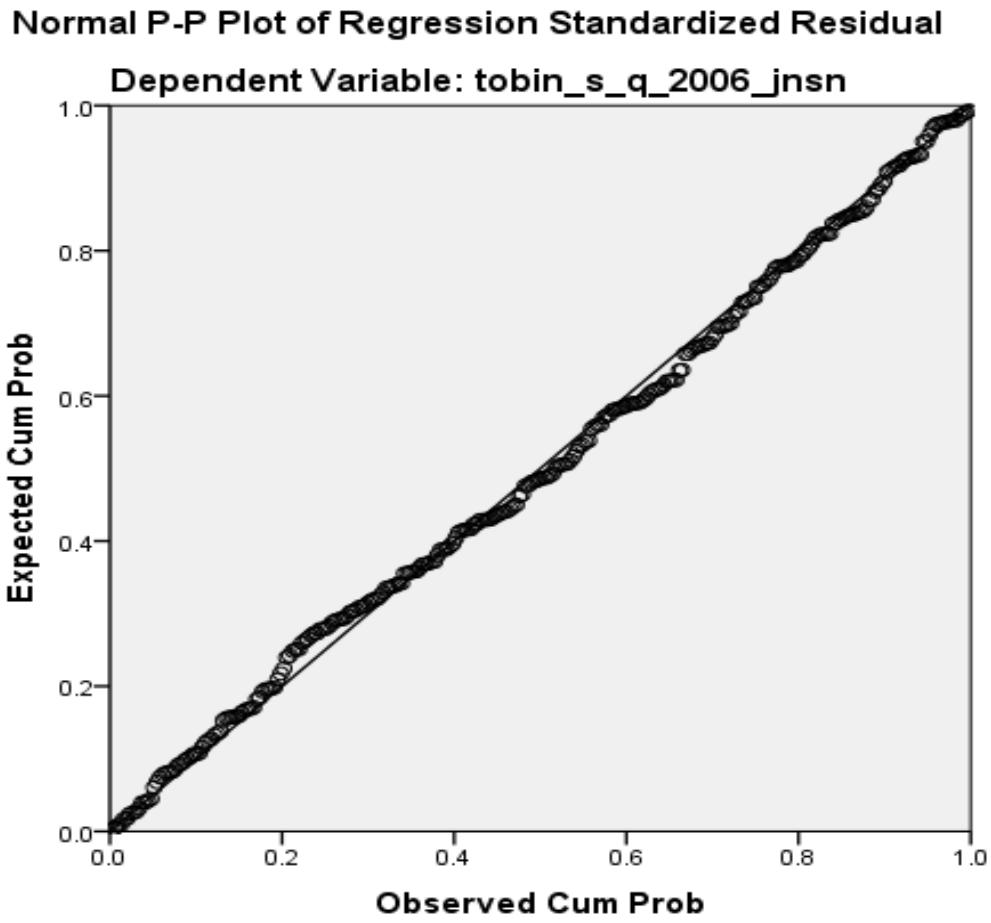

Scatterplot
Dependent Variable: roa_2010_jnsn
Regression Standardized Residual
Regression Standardized Predicted Value
4
2
0
-2
-4
-2
0
2
4

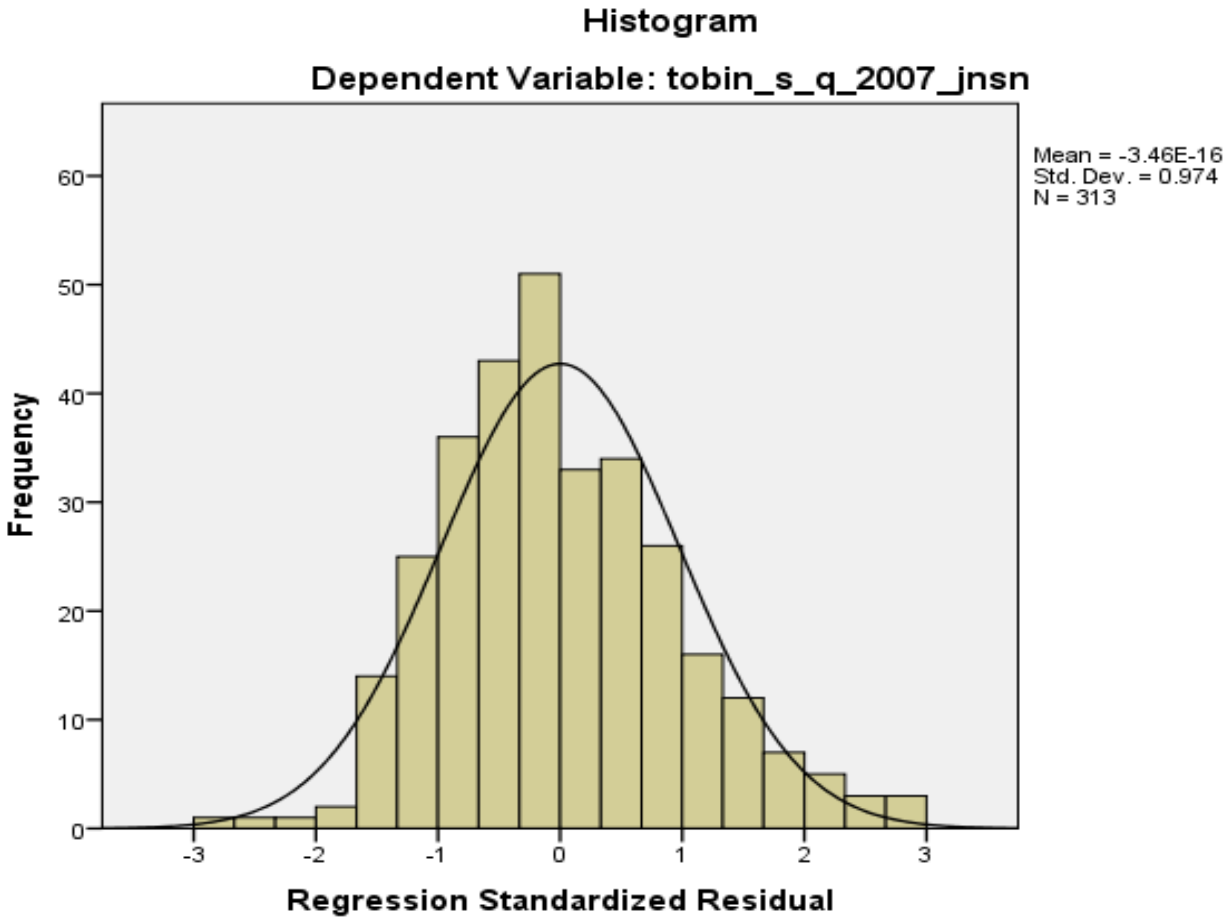
Appendix Ch. 3.5 Tobin's Q: Histograms of the residual errors as well as probability-probability plots were also constructed in order to ensure the normality of these residual errors, which was found to be the case in these analyses

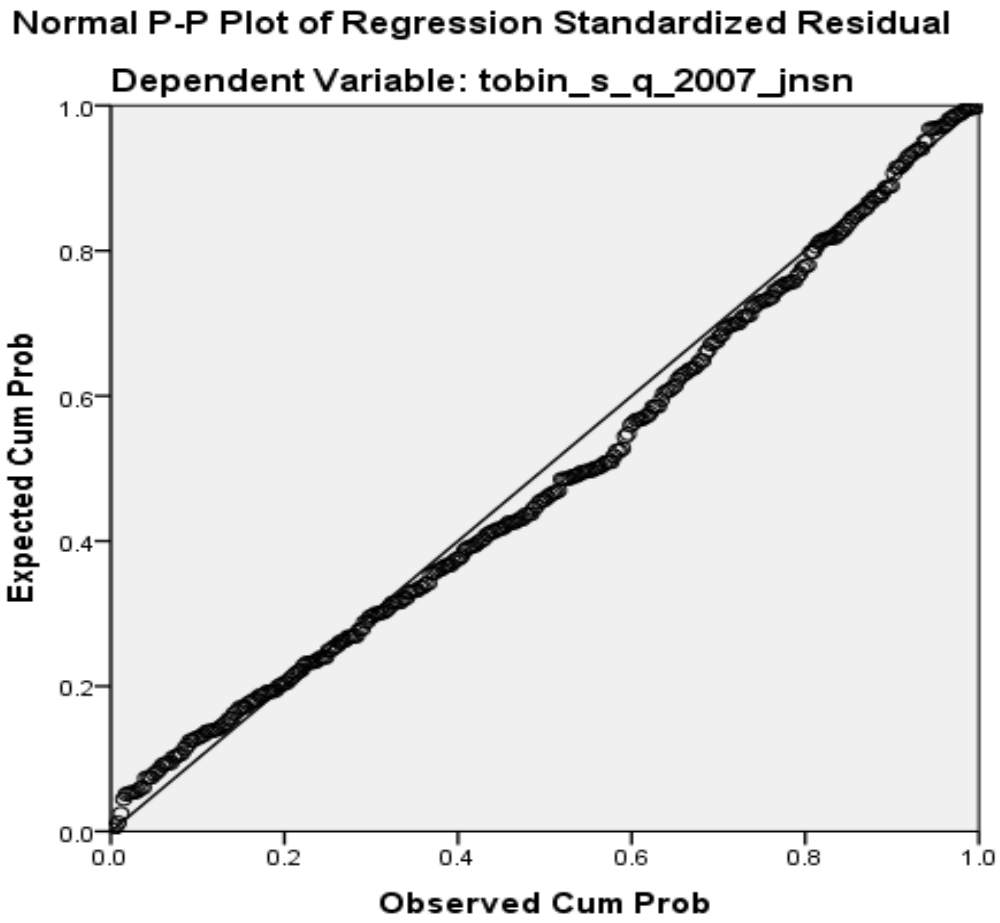


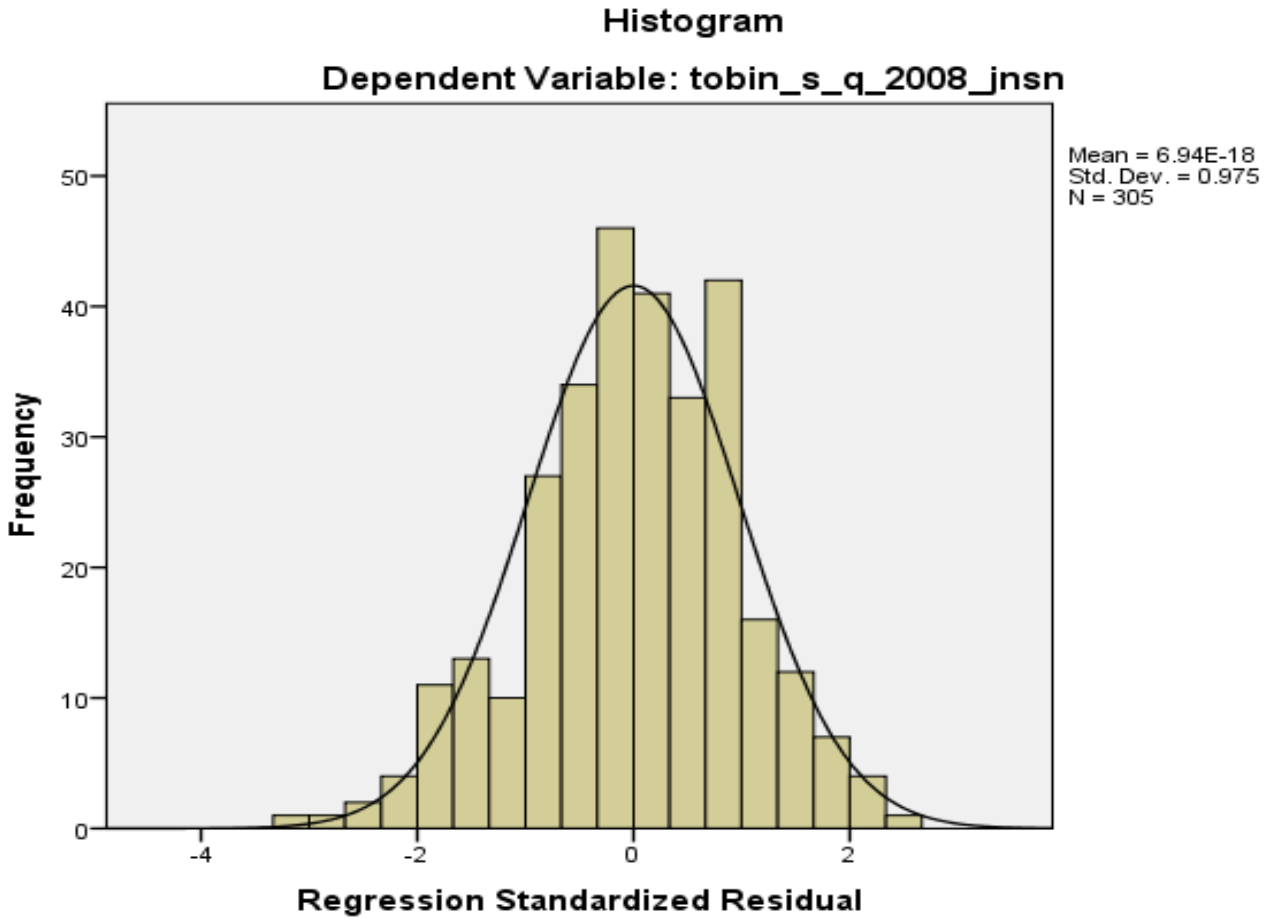

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: tobin_s_q_2005_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

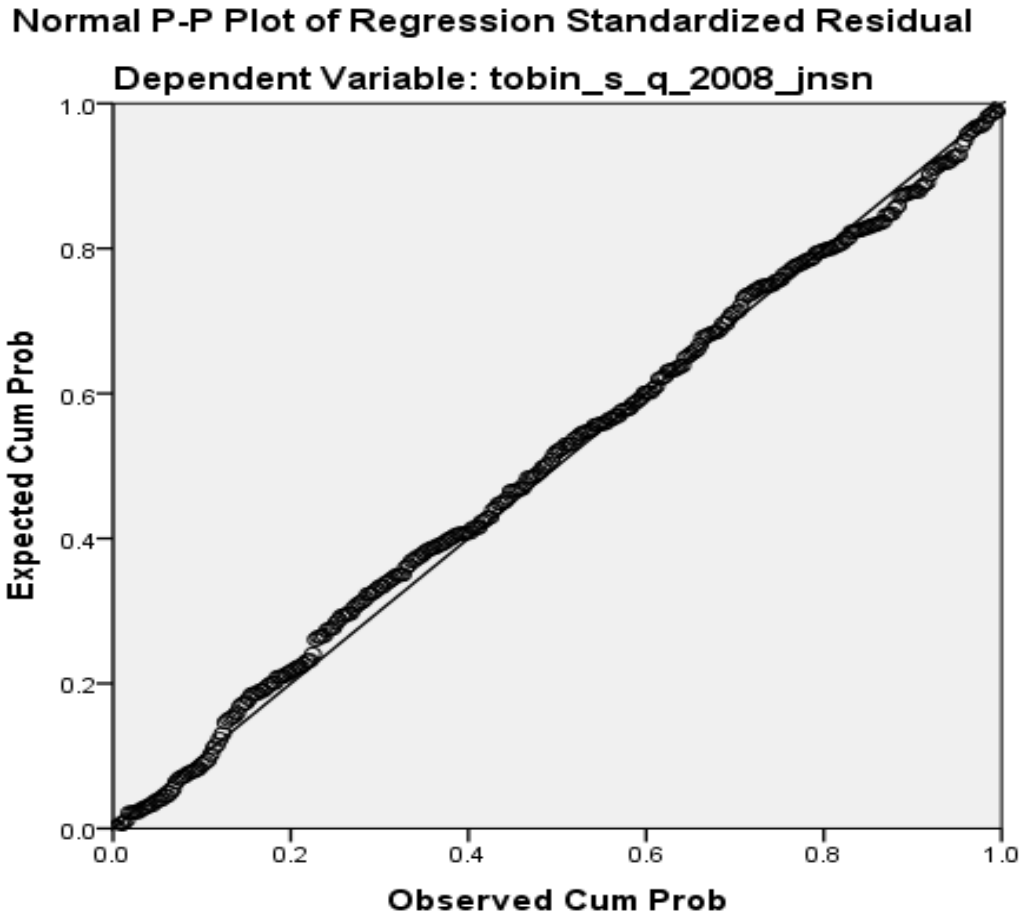

Histogram
Dependent Variable: tobin_s_q_2006_jnsn
Mean = -8.51E-17
Std. Dev. = 0.971
N = 285
Frequency
40
30
20
10
0
-3
-2
-1
0
1
2
3
Regression Standardized Residual

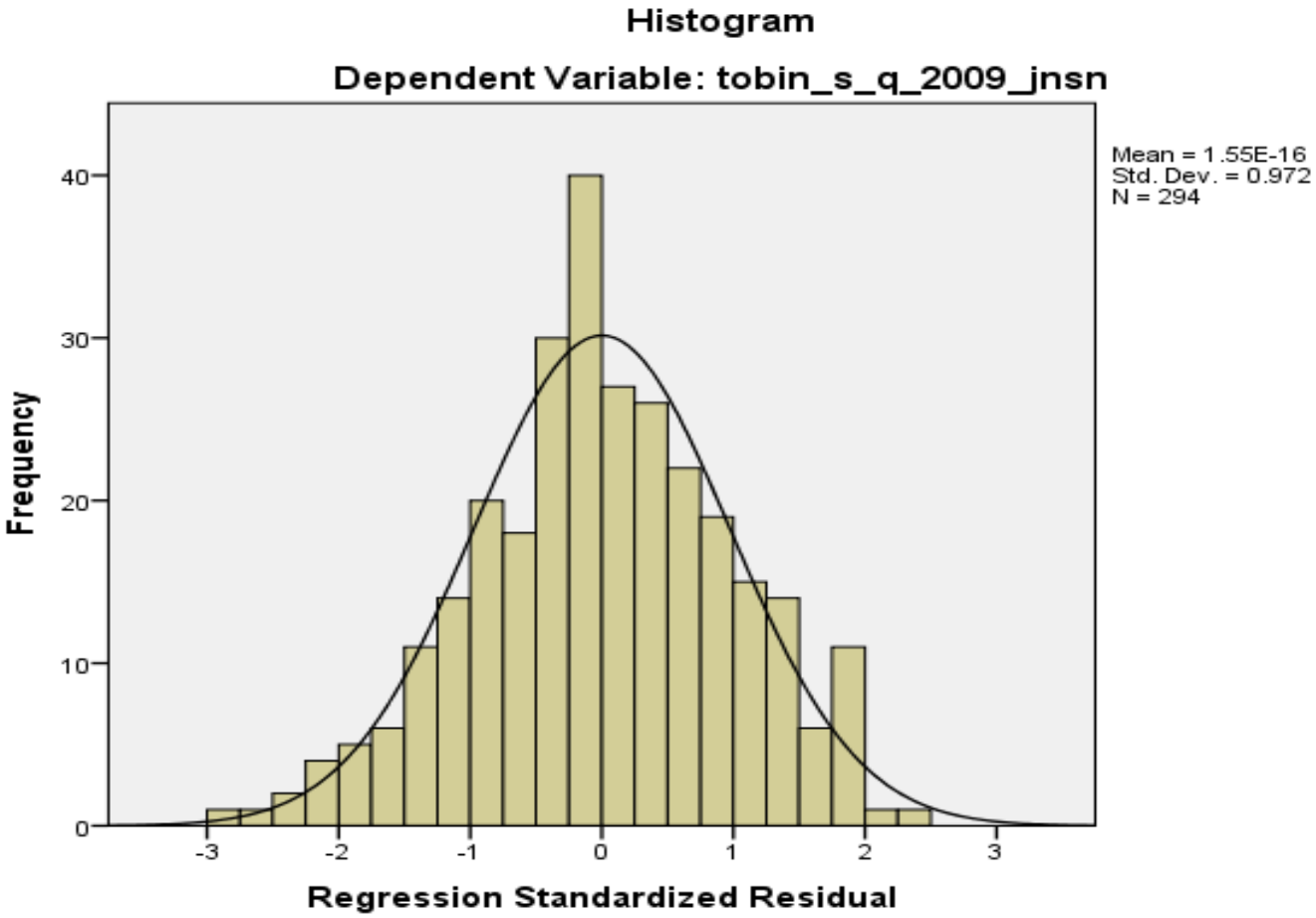

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: tobin_s_q_2006_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

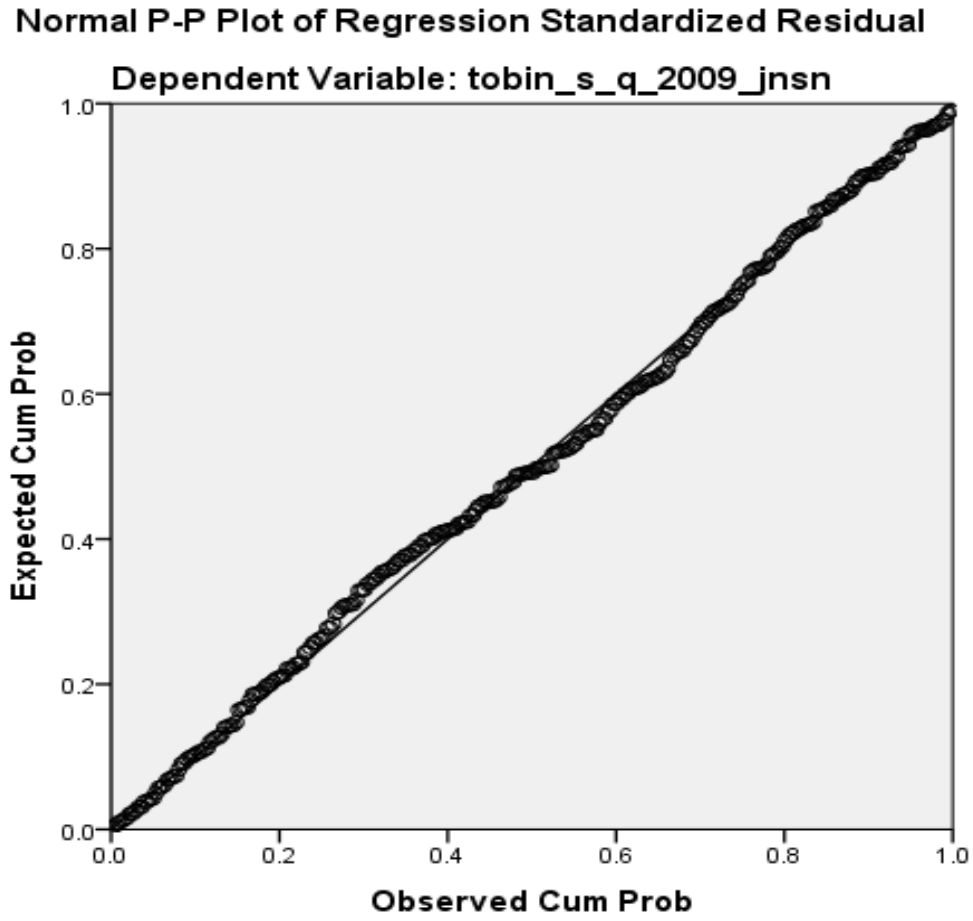

Histogram
Dependent Variable: tobin_s_q_2007_jnsn
Mean = -3.46E-16
Std. Dev. = 0.974
N = 313
Frequency
60
50
40
30
20
10
0
-3
-2
-1
0
1
2
3
Regression Standardized Residual

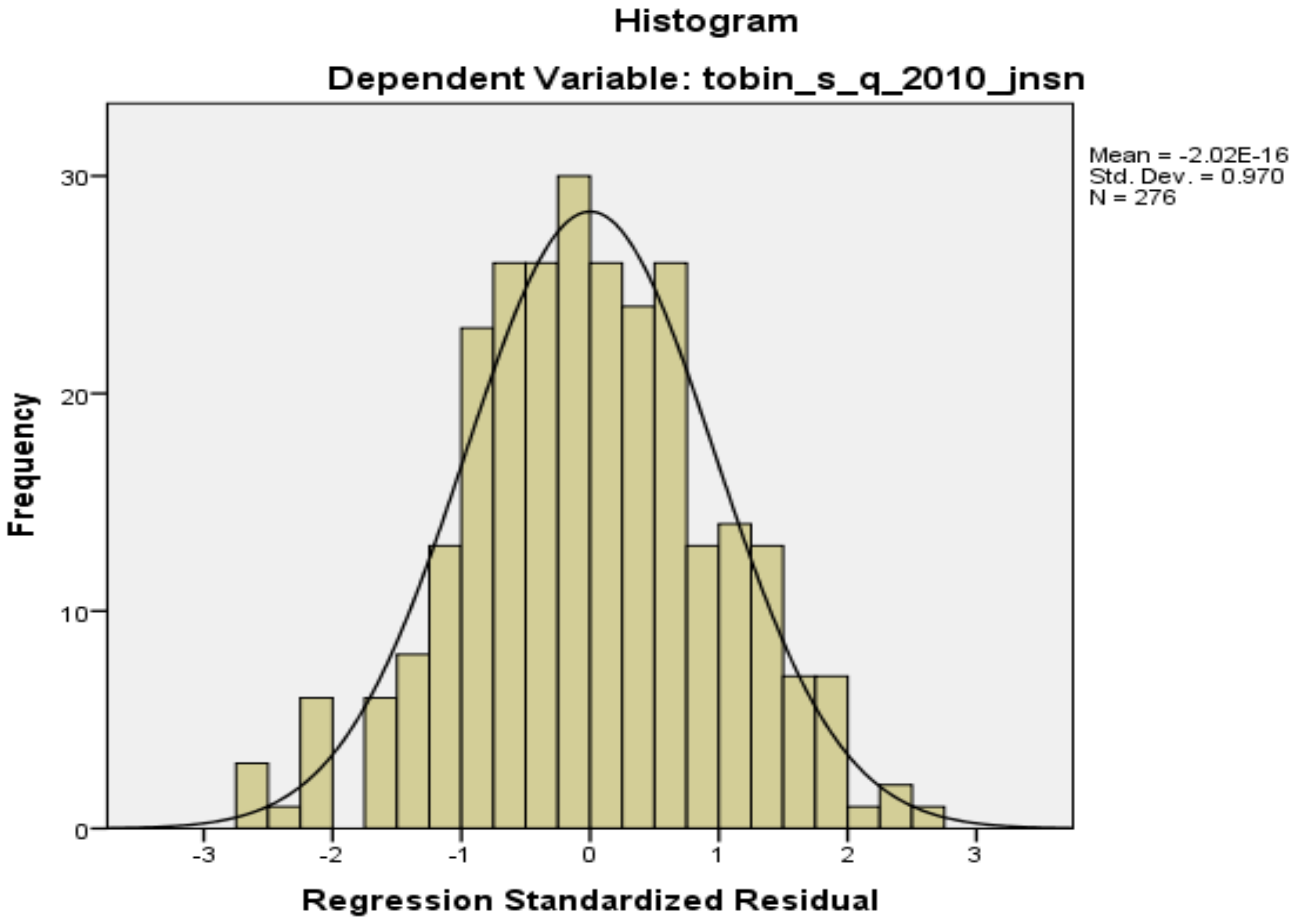

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: tobin_s_q_2007_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

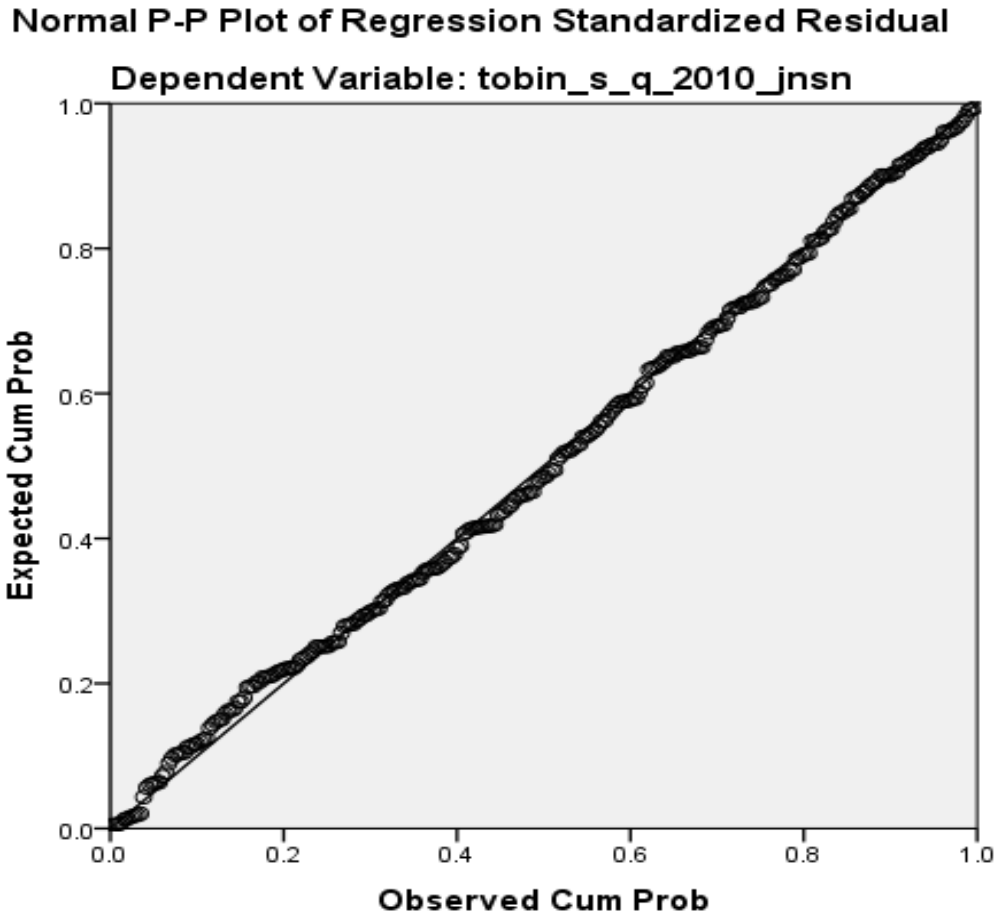

Histogram
Dependent Variable: tobin_s_q_2008_jnsn
Mean = 6.94E-18
Std. Dev. = 0.975
N = 305
Frequency
50
40
30
20
10
0
-4
-2
0
2
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: tobin_s_q_2008_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

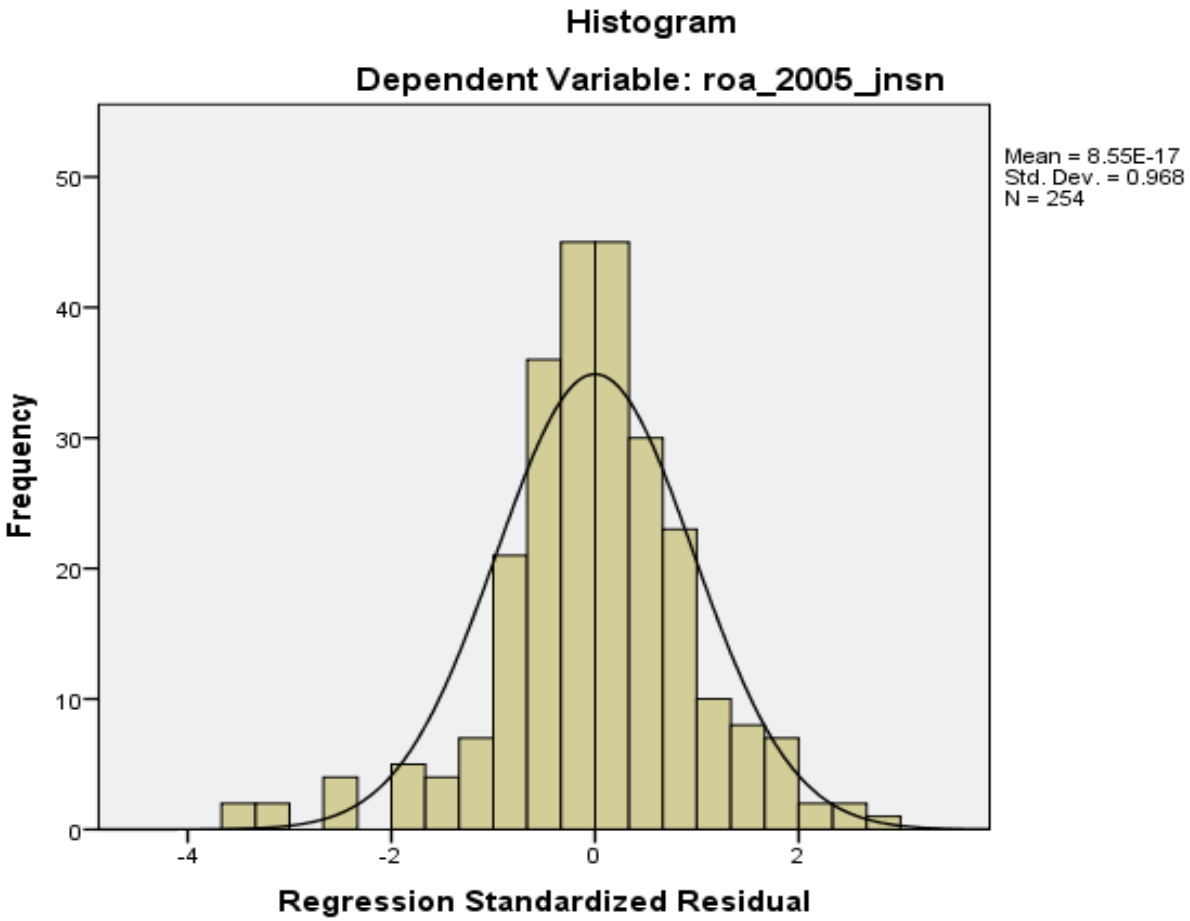

Histogram
Dependent Variable: tobin_s_q_2009_jnsn
Mean = 1.55E-16
Std. Dev. = 0.972
N = 294
Frequency
40
30
20
10
0
-3
-2
-1
0
1
2
3
Regression Standardized Residual

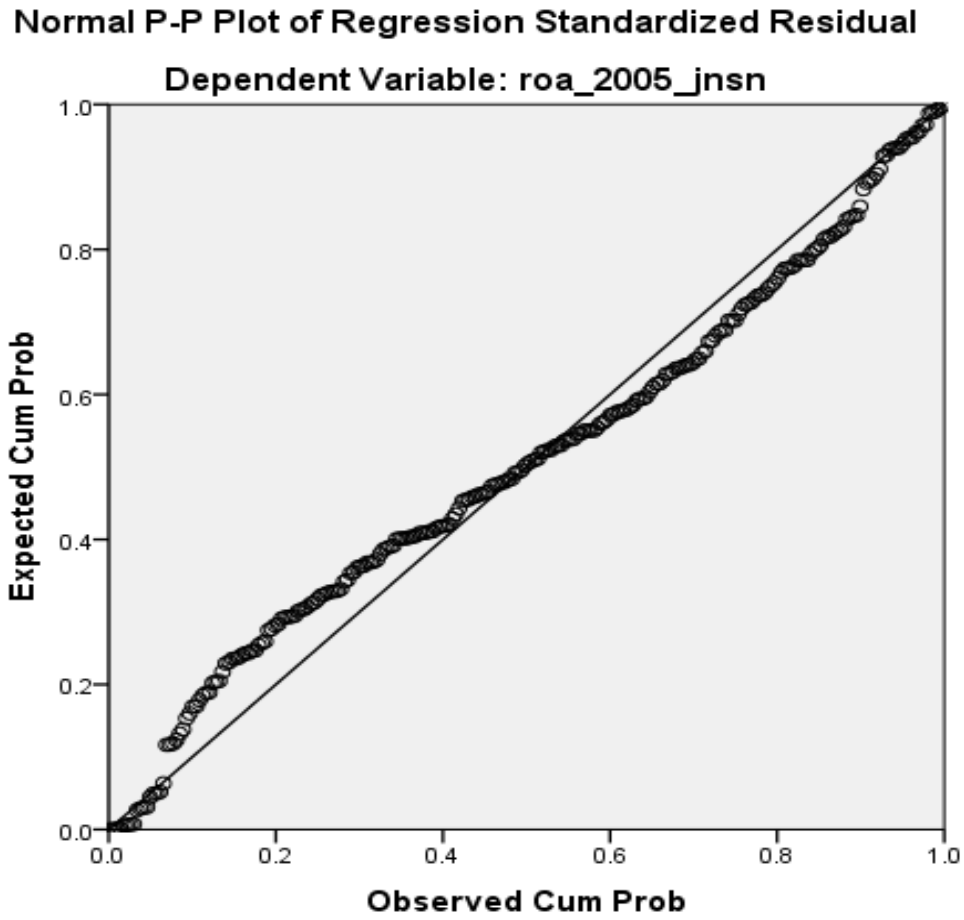

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: tobin_s_q_2009_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

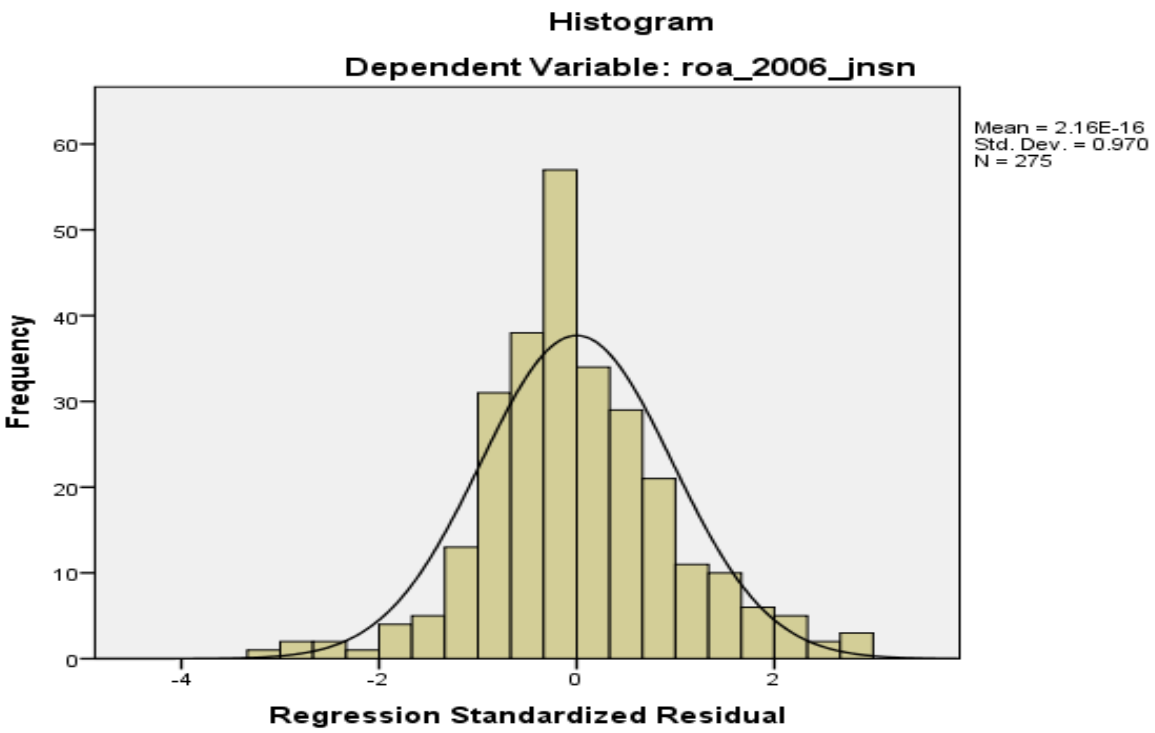

Histogram
Dependent Variable: tobin_s_q_2010_jnsn
Mean = -2.02E-16
Std. Dev. = 0.970
N = 276
Frequency
30
20
10
0
-3
-2
-1
0
1
2
3
Regression Standardized Residual

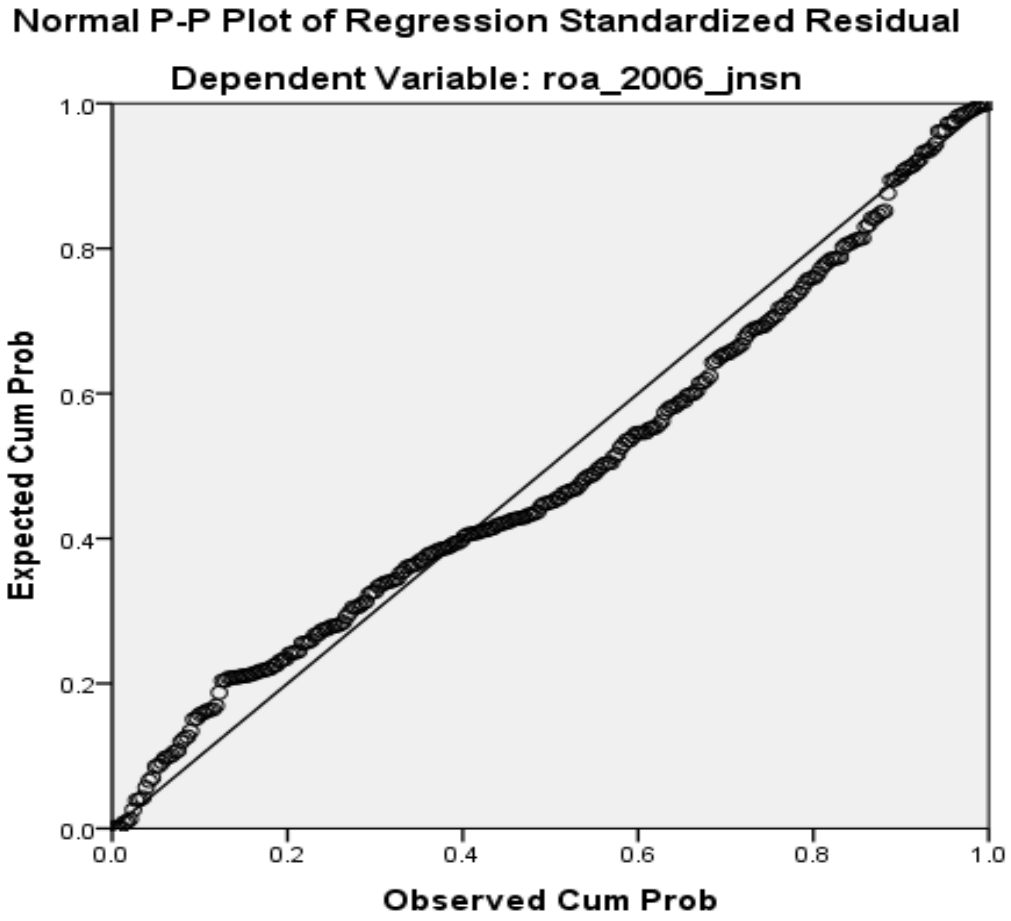

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: tobin_s_q_2010_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

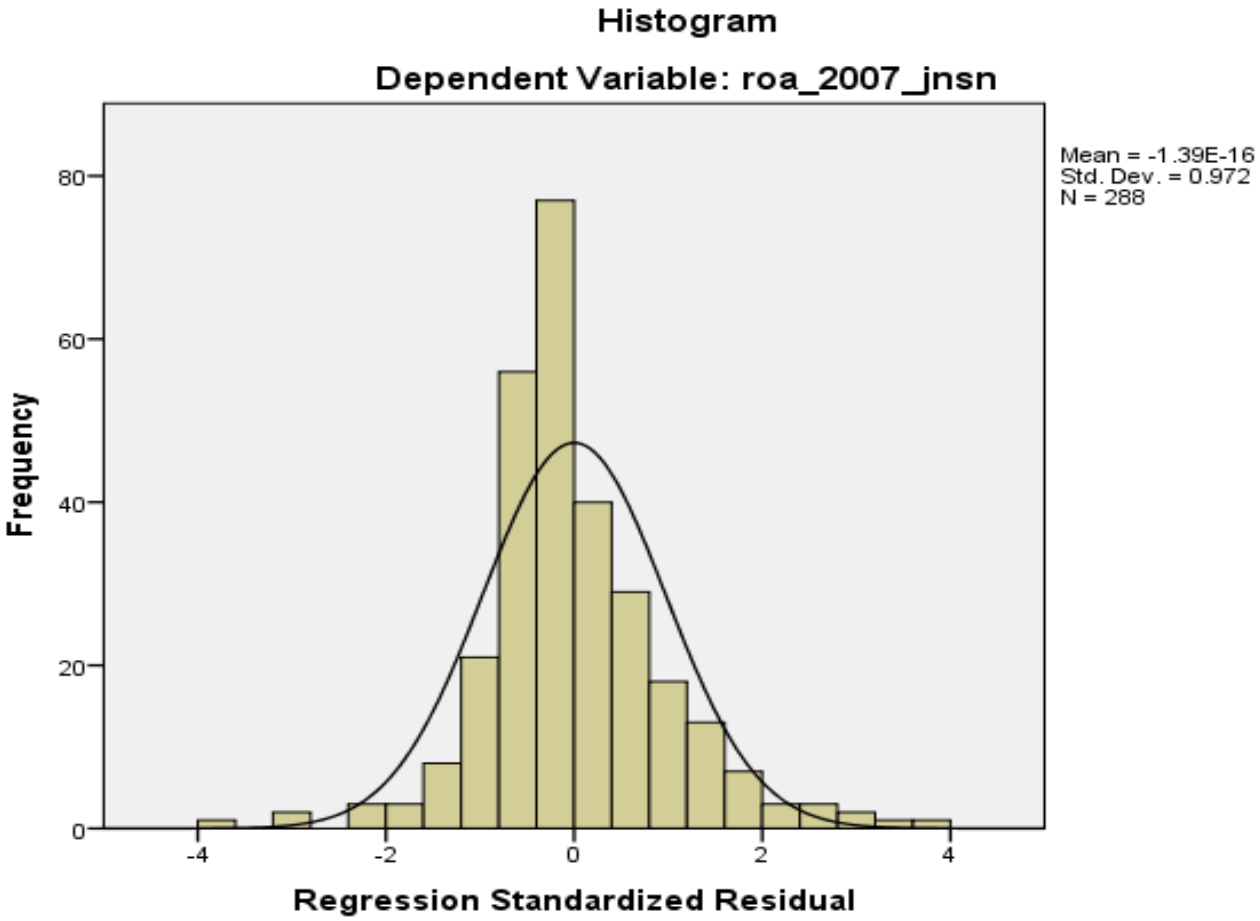
Appendix Ch. 3.6 ROA: Histograms of the residual errors as well as probability-probability plots were also constructed in order to ensure the normality of these residual errors, which was found to be the case in these analyses

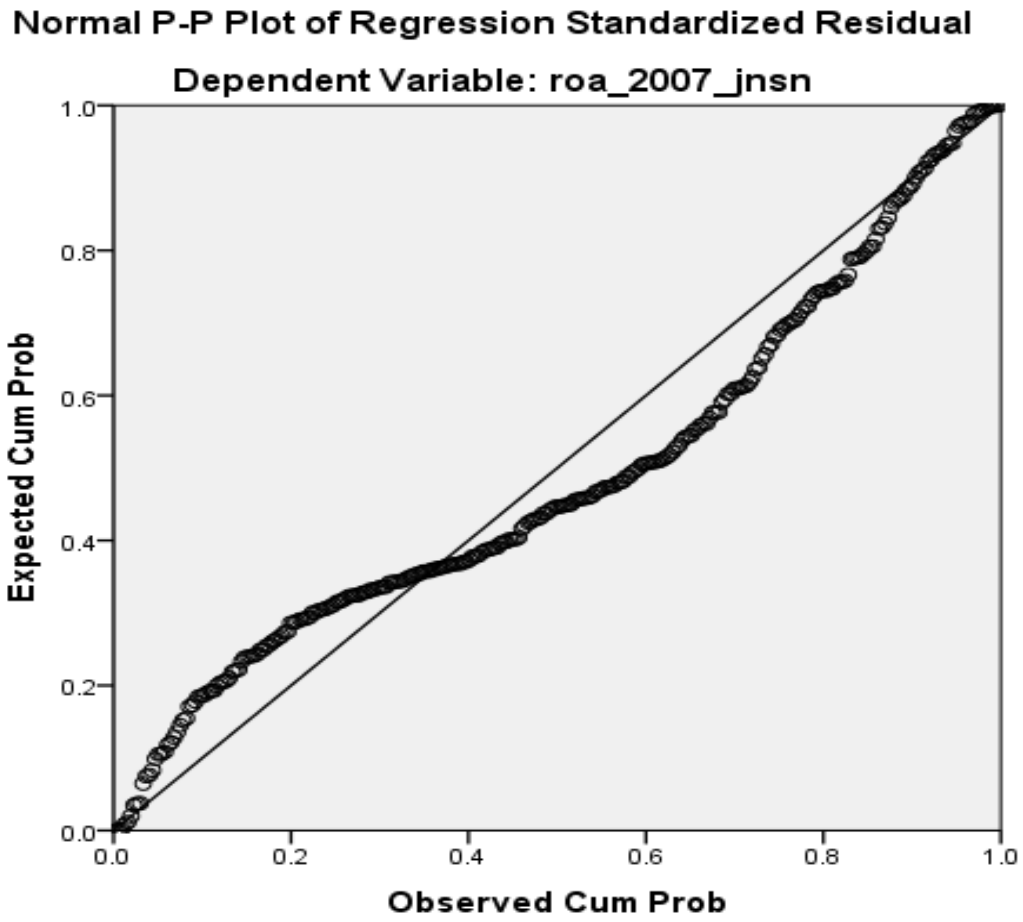


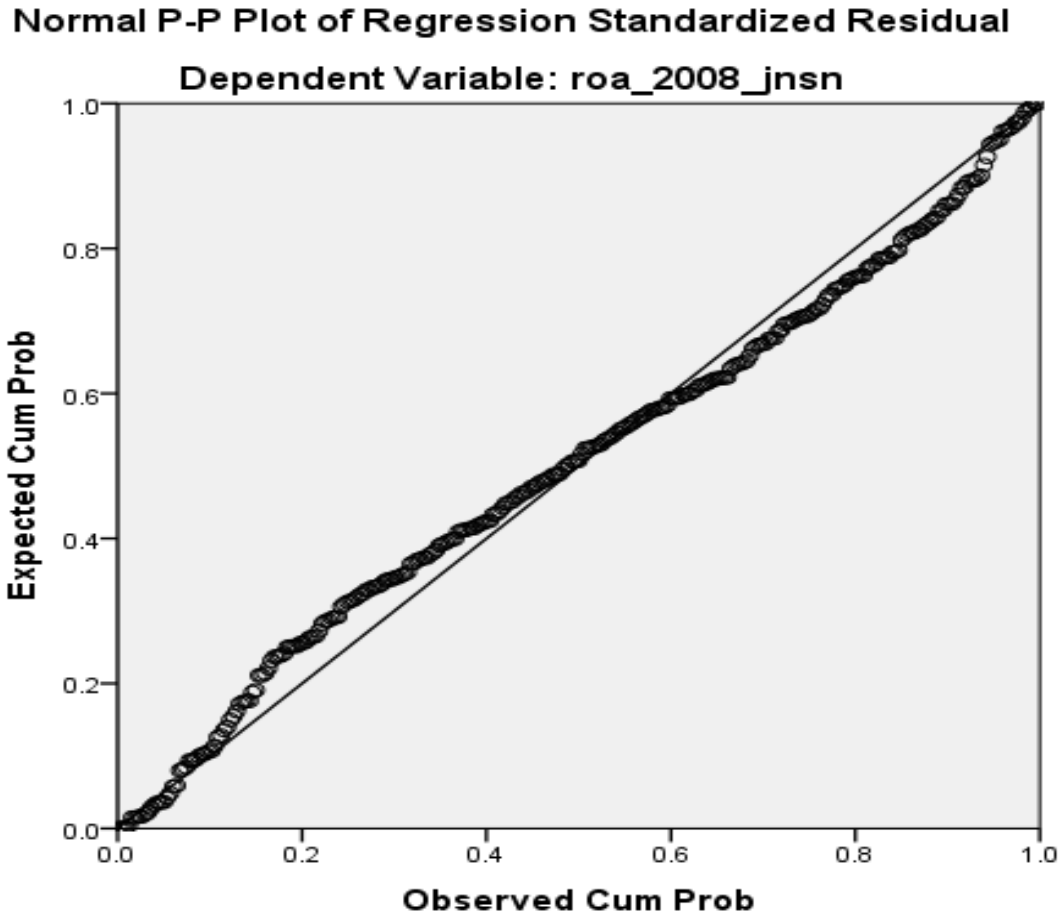

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: roa_2005_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

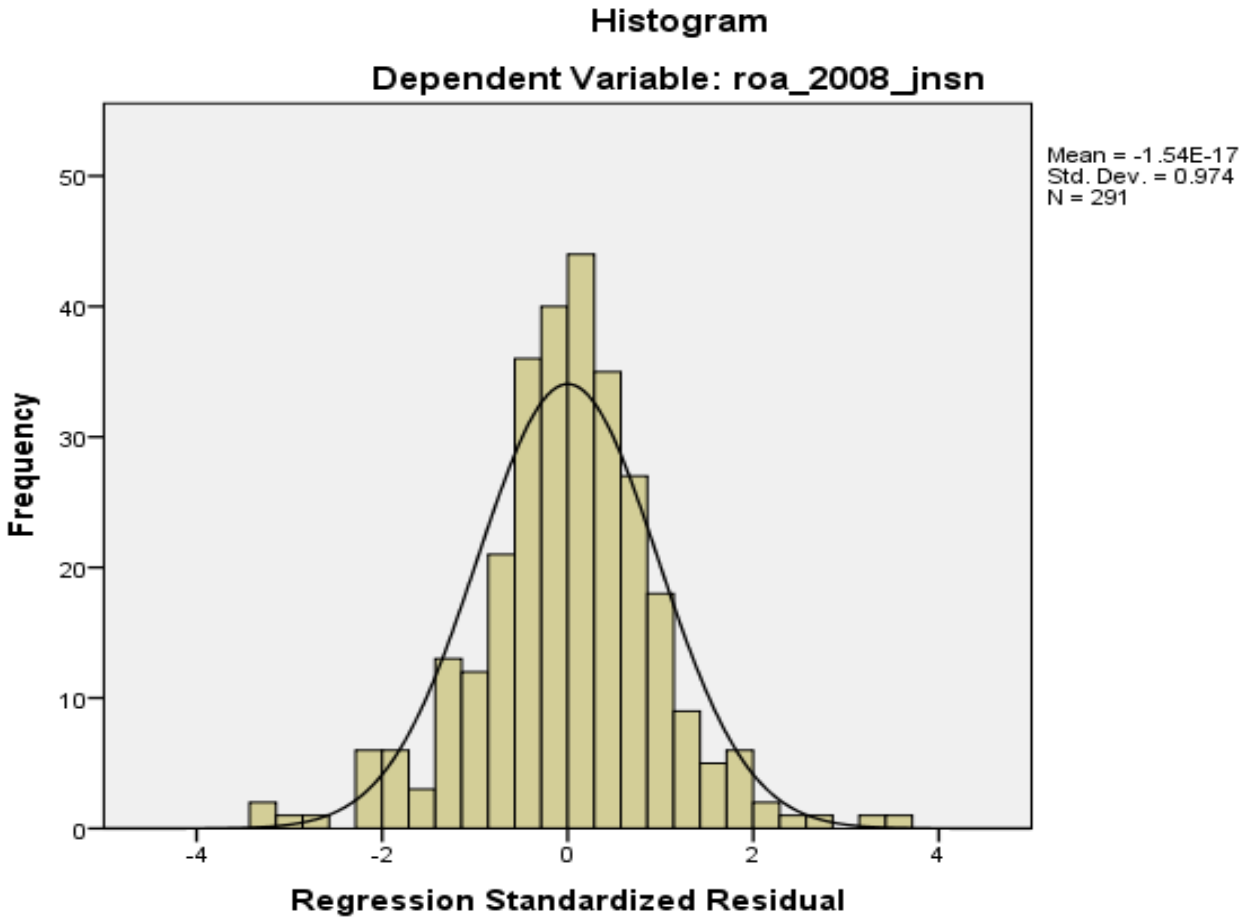

Histogram
Dependent Variable: roa_2006_jnsn
Mean = 2.16E-16
Std. Dev. = 0.970
N = 275
Frequency
60
50
40
30
20
10
0
-4
-2
0
2
Regression Standardized Residual

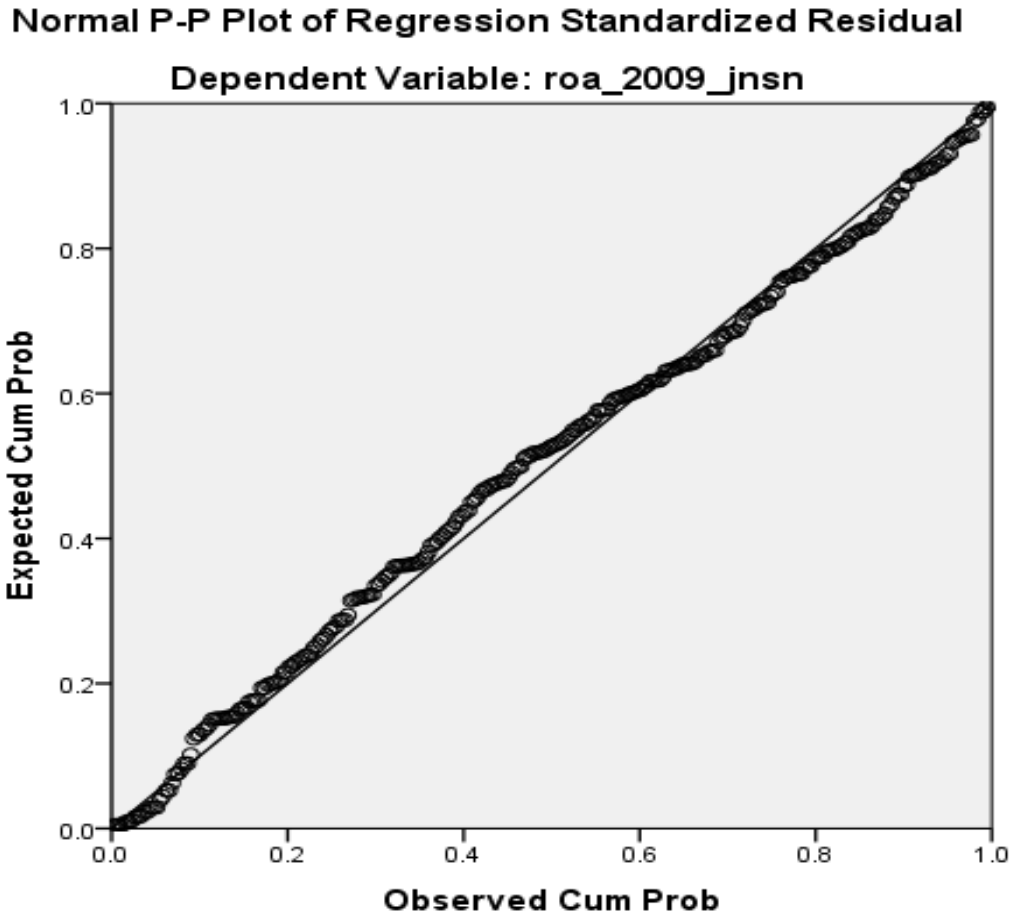

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: roa_2006_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

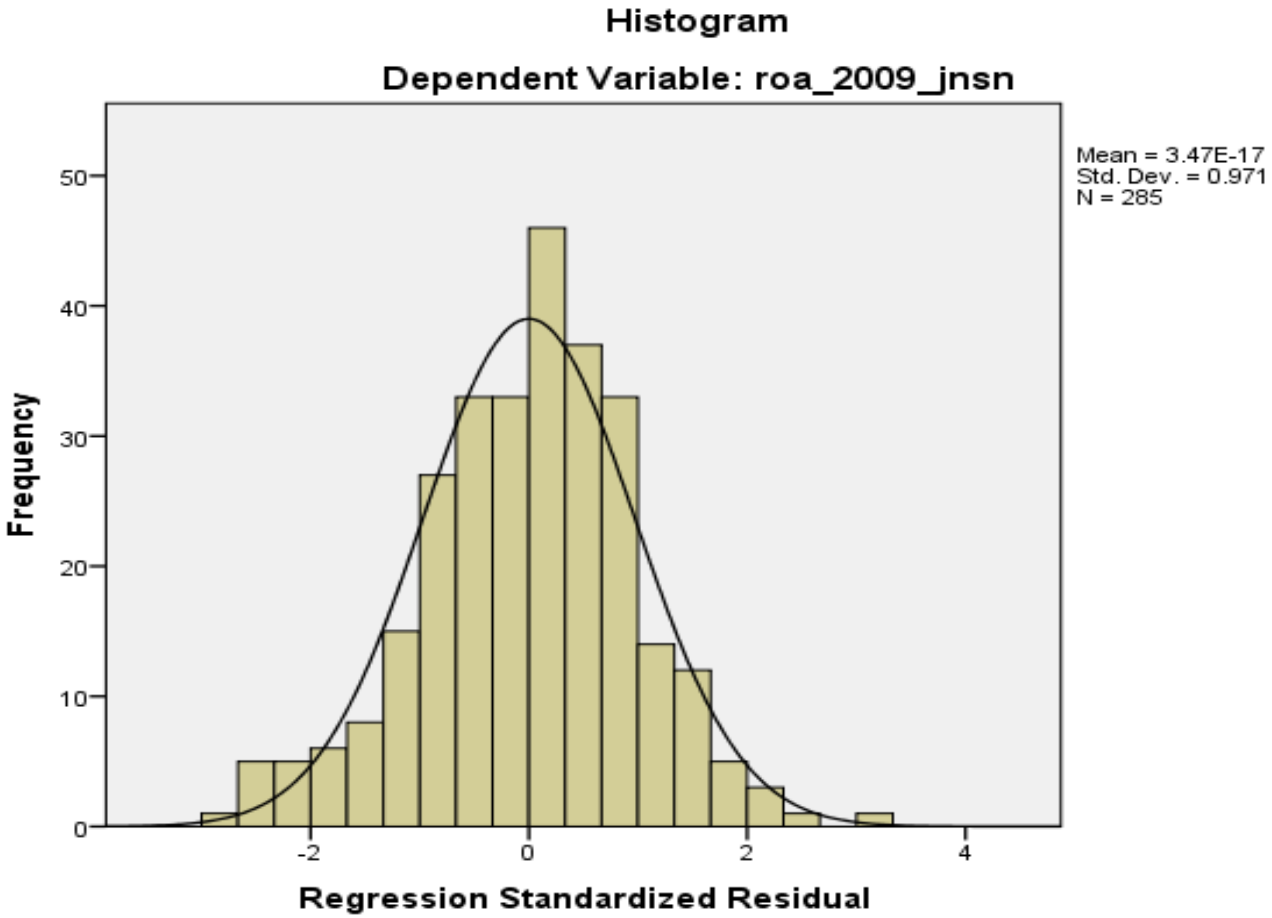

Histogram
Dependent Variable: roa_2007_jnsn
Mean = -1.39E-16
Std. Dev. = 0.972
N = 288
Frequency
80
60
40
20
0
-4
-2
0
2
4
Regression Standardized Residual

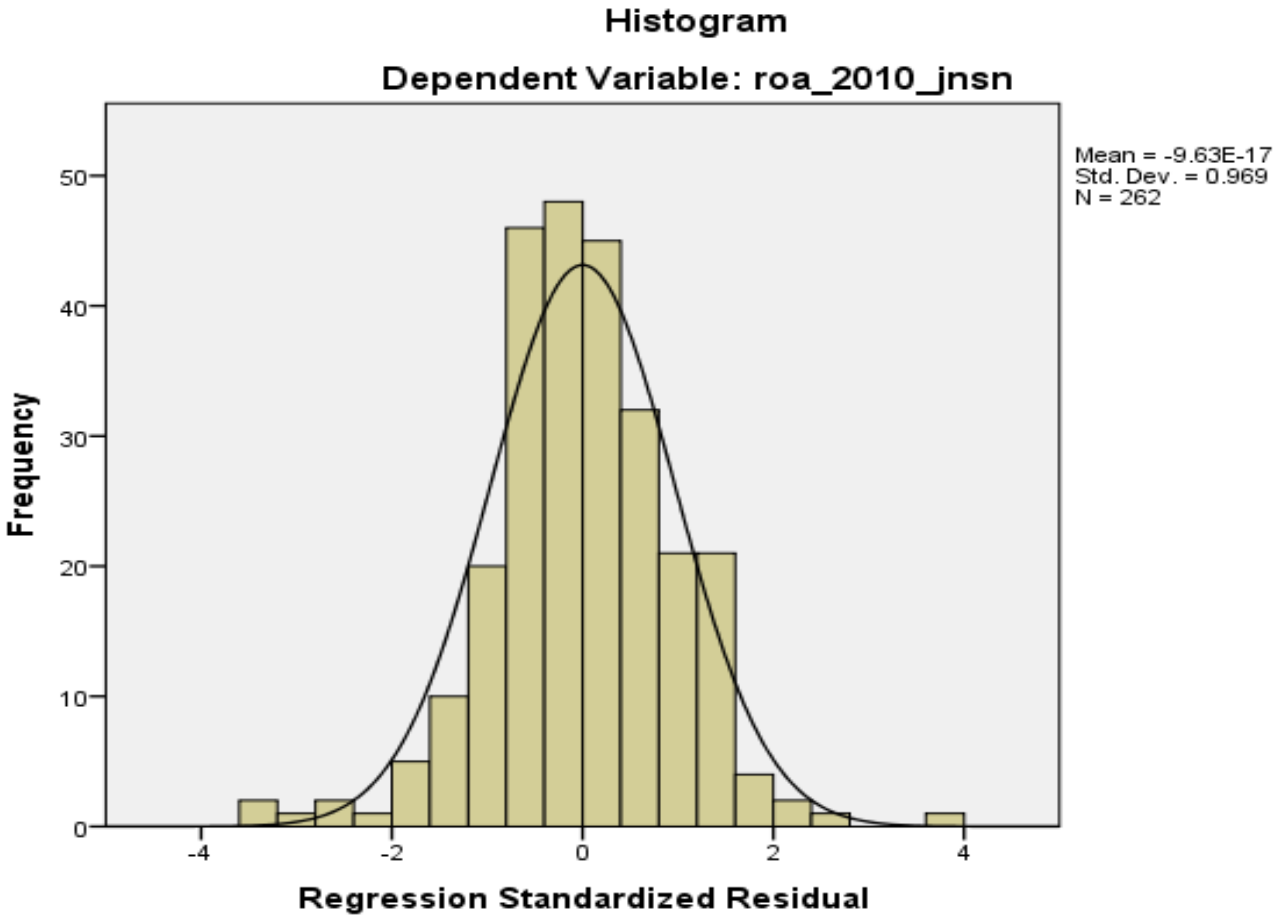

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: roa_2007_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

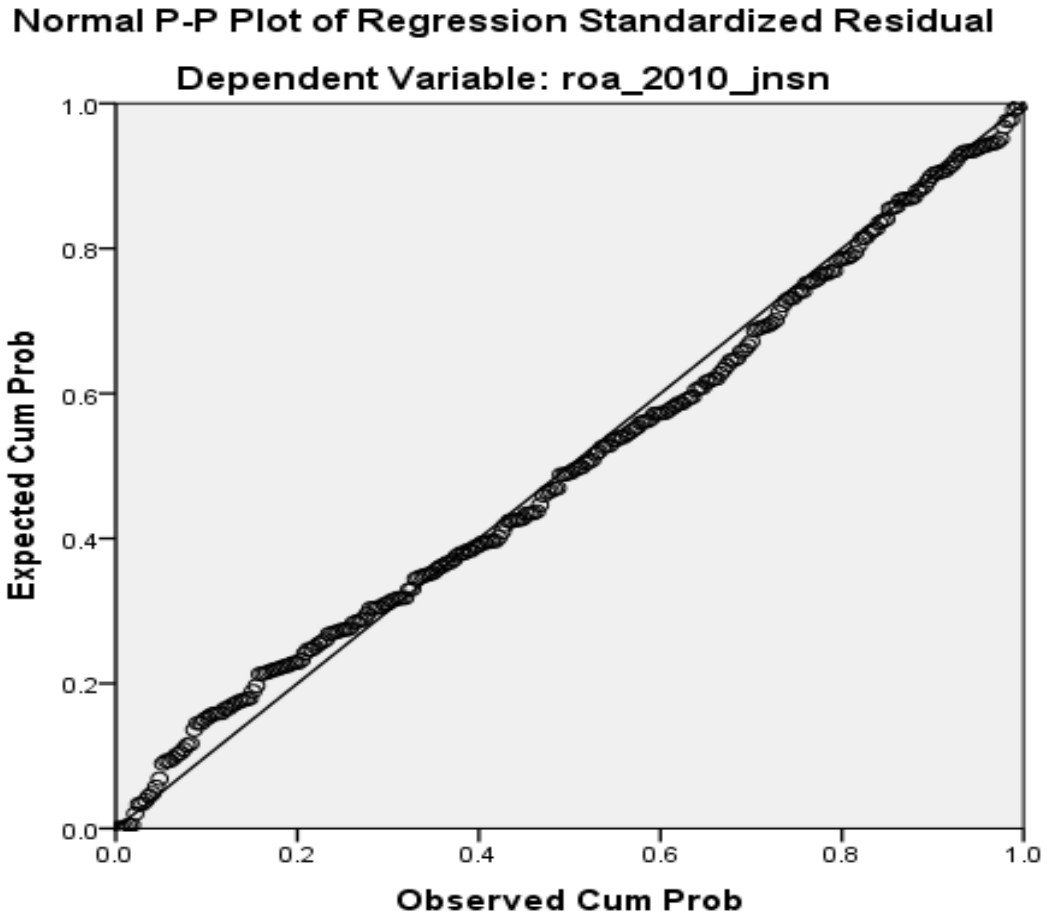

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: roa_2008_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Histogram
Dependent Variable: roa_2008_jnsn
Mean = -1.54E-17
Std. Dev. = 0.974
N = 291
Frequency
50
40
30
20
10
0
-4
-2
0
2
4
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: roa_2009_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Histogram
Dependent Variable: roa_2009_jnsn
Mean = 3.47E-17
Std. Dev. = 0.971
N = 285
Frequency
50
40
30
20
10
0
-2
0
2
4
Regression Standardized Residual


Histogram
Dependent Variable: roa_2010_jnsn
Mean = -9.63E-17
Std. Dev. = 0.969
N = 262
Frequency
50
40
30
20
10
0
-4
-2
0
2
4
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: roa_2010_jnsn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

Appendix c

Appendices for Chapter 4

Appendix CH. 4.1 Correlation between explanatory variable

Appendix Ch. 4.1.1 Correlation between Debt and Dividend Payout

	DEBT2005	DEBT2006	DEBT2007	DEBT2008	DEBT2009	DEBT2010	Dpout 2005	Dpout 2006	Dpout 2007	Dpout 2008	Dpout 2009	Dpout 2010
DEBT2005	1											
DEBT2006	.728**	1										
DEBT2007	.646**	.818**	1									
DEBT2008	.576**	.776**	.856**	1								
DEBT2009	.583**	.771**	.815**	.918**	1							
DEBT2010	.589**	.736**	.785**	.859**	.921**	1						
Dpout 2005	.011	-.071	-.104	-.079	-.052	-.048	1					
Dpout 2006	-.021	.012	-.002	.024	.033	.040	.195**	1				
Dpout 2007	-.058	-.058	-.023	-.061	-.064	-.079	-.030	.016	1			
Dpout 2008	-.005	-.006	-.004	-.008	.005	.005	.035	.020	.029	1		
Dpout 2009	-.035	-.040	-.068	-.067	-.069	-.077	.031	.115*	-.015	.013	1	
Dpout 2010	-.048	-.008	.040	.018	.026	.055	.018	-.056	-.021	.004	-.025	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix Ch. 4.1.2Correlation between Firm size and Debt

	LGFSIZE2005	LGFSIZE2006	LGFSIZE2007	LGFSIZE2008	LGFSIZE2009	LGFSIZE2010	DEBT 2005	DEBT 2006	DEBT 2007	DEBT 2008	DEBT 2009	DEBT 2010
LGFSIZE2005	1											
LGFSIZE2006	.984**	1										
LGFSIZE2007	.966**	.983**	1									
LGFSIZE2008	.952**	.972**	.988**	1								
LGFSIZE2009	.947**	.968**	.979**	.993**	1							
LGFSIZE2010	.935**	.959**	.968**	.986**	.994**	1						
DEBT 2005	.217**	.242**	.228**	.221**	.216**	.203**	1					
DEBT 2006	.277**	.243**	.219**	.208**	.207**	.194**	.728**	1				
DEBT 2007	.276**	.270**	.275**	.262**	.250**	.230**	.646**	.818**	1			
DEBT 2008	.295**	.296**	.286**	.285**	.264**	.244**	.576**	.776**	.856**	1		
DEBT 2009	.287**	.292**	.283**	.286**	.260**	.240**	.583**	.771**	.815**	.918**	1	
DEBT 2010	.291**	.298**	.291**	.299**	.273**	.261**	.589**	.736**	.785**	.859**	.921**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix Ch. 4.1.3 Correlation between Firm Size and Dividend Payout

	LGFSize2005	LGFSize2006	LGFSize2007	LGFSize2008	LGFSize2009	LGFSize2010	Dpout 2005	Dpout 2006	Dpout 2007	Dpout 2008	Dpout 2009	Dpout 2010
LGFSize2005	1											
LGFSize2006	.984**	1										
LGFSize2007	.966**	.983**	1									
LGFSize2008	.952**	.972**	.988**	1								
LGFSize2009	.947**	.968**	.979**	.993**	1							
LGFSize2010	.935**	.959**	.968**	.986**	.994**	1						
Dpout 2005	-.025	-.041	-.062	-.070	-.057	-.056	1					
Dpout 2006	-.057	-.041	-.052	-.053	-.053	-.050	.195**	1				
Dpout 2007	.009	.005	-.059	-.068	-.067	-.072	-.030	.016	1			
Dpout 2008	.003	.003	-.003	-.002	-.005	-.010	.035	.020	.029	1		
Dpout 2009	-.084	-.055	-.049	-.045	-.044	-.036	.031	.115*	-.015	.013	1	
Dpout 2010	.020	.003	-.008	-.012	-.007	-.011	.018	-.056	-.021	.004	-.025	1

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix Ch. 4.1.4 Correlation between Directors' Ownership and Debt

	DIRW2005	DIRW2006	DIRW2007	DIRW2008	DIRW2009	DIRW2010	Debt 2005	Debt 2006	Debt 2007	Debt 2008	Debt 2009	Debt 2010
DIRW2005	1											
DIRW2006	.964**	1										
DIRW2007	.887**	.931**	1									
DIRW2009	.849**	.900**	.978**	1								
DIRW2009	.765**	.820**	.914**	.923**	1							
DIRW2010	.730**	.788**	.895**	.904**	.985**	1	-.090					
Debt 2005	-.130*	-.111*	-.096	-.073	-.080	-.090	1					
Debt 2006	-.135*	-.141**	-.115*	-.109*	-.100	-.107	.728**	1				
Debt 2007	-.156**	-.139**	-.133*	-.122*	-.111*	-.122*	.646**	.818**	1			
Debt 2008	-.149**	-.121*	-.084	-.086	-.065	-.075	.576**	.776**	.856**	1		
Debt 2009	-.116*	-.090	-.054	-.054	-.041	-.063	.583**	.771**	.815**	.918**	1	
Debt 2010	-.117*	-.089	-.057	-.061	-.048	-.069	.589**	.736**	.785**	.859**	.921**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix Ch. 4.1.5 Correlation between Directors' Ownership and Dividend Payout

	DIRW2005	DIRW2006	DIRW2007	DIRW2008	DIRW2009	DIRW2010	Dpout 2005	Dpout 2006	Dpout 2007	Dpout 2008	Dpout 2009	Dpout 2010
DIRW2005	1											
DIRW2006	.964**	1										
DIRW2007	.887**	.931**	1									
DIRW2008	.849**	.900**	.978**	1								
DIRW2009	.765**	.820**	.914**	.923**	1							
DIRW2010	.730**	.788**	.895**	.904**	.985**	1						
Dpout 2005	.102	.050	.035	.005	-.007	.005	1					
Dpout 2006	.187**	.188**	.169**	.152**	.158**	.163**	.195**	1				
Dpout 2007	.139*	.136*	.125*	.140**	.128*	.132*	-.030	.016	1			
Dpout 2008	-.016	-.020	-.029	-.029	-.030	-.033	.035	.020	.029	1		
Dpout 2009	.007	-.005	.047	.041	.043	.040	.031	.115*	-.015	.013	1	
Dpout 2010	-.039	-.044	-.012	-.023	-.017	-.023	.018	-.056	-.021	.004	-.025	1
**. Correlation is significant at the 0.01 level (2-tailed).												
*. Correlation is significant at the 0.05 level (2-tailed).												

Appendix Ch. 4.1.6 Correlation between Directors' Ownership and Firm Size

	DIRW2005	DIRW2006	DIRW2007	DIRW2008	DIRW2009	DIRW2010	LGFSize2005	LGFSize2006	LGFSize2007	LGFSize2008	LGFSize2009	LGFSize2010
DIRW2005	1											
DIRW2005	.964**	1										
DIRW2005	.887**	.931**	1									
DIRW2005	.849**	.900**	.978**	1								
DIRW2005	.765**	.820**	.914**	.923**	1							
DIRW2005	.730**	.788**	.895**	.904**	.985**	1						
LGFSize2005	-.233**	-.218**	-.263**	-.255**	-.250**	-.255**	1					
LGFSize2006	-.243**	-.221**	-.254**	-.245**	-.243**	-.250**	.984**	1				
LGFSize2007	-.246**	-.221**	-.249**	-.240**	-.241**	-.250**	.966**	.983**	1			
LGFSize2008	-.231**	-.207**	-.237**	-.231**	-.236**	-.247**	.952**	.972**	.988**	1		
LGFSize2009	-.236**	-.214**	-.251**	-.244**	-.248**	-.246**	.947**	.968**	.979**	.993**	1	
LGFSize2010	-.236**	-.214**	-.250**	-.245**	-.243**	-.234**	.935**	.959**	.968**	.986**	.994**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix Ch. 4.1.7 Correlation between Executive Remuneration and Debt

	LGREM2005	LGREM2006	LGREM2007	LGREM2008	LGREM2009	LGREM2010	DEBT 2005	DEBT 2006	DEBT 2007	DEBT 2008	DEBT 2009	DEBT 2010
LGREM2005	1											
LGREM2006	.918**	1										
LGREM2007	.877**	.900**	1									
LGREM2008	.844**	.867**	.903**	1								
LGREM2009	.824**	.837**	.861**	.908**	1							
LGREM2010	.817**	.827**	.848**	.886**	.926**	1						
DEBT 2005	.178**	.148**	.172**	.167**	.161**	.146**	1					
DEBT 2006	.173**	.164**	.132*	.119*	.104	.124*	.728**	1				
DEBT 2007	.224**	.225**	.189**	.171**	.157**	.198**	.646**	.818**	1			
DEBT 2008	.193**	.165**	.161**	.107*	.108*	.137*	.576**	.776**	.856**	1		
DEBT 2009	.149**	.130*	.121*	.078	.081	.114*	.583**	.771**	.815**	.918**	1	
DEBT 2010	.132*	.129*	.128*	.109*	.103	.130*	.589**	.736**	.785**	.859**	.921**	1
**. Correlation is significant at the 0.01 level (2-tailed).												
*. Correlation is significant at the 0.05 level (2-tailed).												

Appendix Ch. 4.1.8 Correlation between Executive Remuneration and Dividend Payout

	LGEXCREM2005	LGEXREM2006	LGEXCREM2007	LGEXCREM2008	LGEXCREM2009	LGEXCREM2010	Dpout 2005	Dpout 2006	Dpout 2007	Dpout 2008	Dpout 2009	Dpout 2010
LGEXCREM2005	1											
LGEXCREM2006	.918**	1										
LGEXCREM2007	.877**	.900**	1									
LGEXCREM2008	.844**	.867**	.903**	1								
LGEXCREM2009	.824**	.837**	.861**	.908**	1							
LGEXCREM2010	.817**	.827**	.848**	.886**	.926**	1						
Dpout 2005	-.017	-.017	.010	.002	-.005	-.036	1					
Dpout 2006	-.012	-.012	-.006	-.006	-.020	.012	.195**	1				
Dpout 2007	-.069	-.086	-.108*	-.097	-.076	-.088	-.030	.016	1			
Dpout 2008	.039	.029	.037	.074	.061	.041	.035	.020	.029	1		
Dpout 2009	-.013	-.013	-.018	.009	-.022	.025	.031	.115*	-.015	.013	1	
Dpout 2010	.018	.026	-.022	-.019	.003	-.077	.018	-.056	-.021	.004	-.025	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix Ch. 4.1.9 Correlation between Board Size and Dividend Payout

	BSIZE2005	BSIZE2005	BSIZE2005	BSIZE2005	BSIZE2005	BSIZE2005	Dpout 2005	Dpout 2006	Dpout 2007	Dpout 2008	Dpout 2009	Dpout 2010
BrdSize2005	1											
BrdSize2006	.872**	1										
BrdSize2007	.822**	.890**	1									
BrdSize2008	.750**	.821**	.888**	1								
BrdSize2009	.735**	.778**	.815**	.889**	1							
BrdSize2010	.677**	.704**	.747**	.794**	.867**	1						
Dpout 2005	-.052	-.023	-.029	-.046	-.072	-.063	1					
Dpout 2006	-.042	-.022	-.027	-.037	-.052	-.036	.195**	1				
Dpout 2007	-.083	-.092	-.101	-.088	-.087	-.090	-.030	.016	1			
Dpout 2008	.042	.058	.046	.050	.037	.042	.035	.020	.029	1		
Dpout 2009	-.090	-.042	-.050	-.055	-.080	-.036	.031	.115*	-.015	.013	1	
Dpout 2010	-.017	.003	-.011	-.033	-.005	-.034	.018	-.056	-.021	.004	-.025	1
**. Correlation is significant at the 0.01 level (2-tailed).												
*. Correlation is significant at the 0.05 level (2-tailed).												

Appendix Ch. 4.1.10 Correlation between Board size and Independent Directors

	BSIZE2005	BSIZE2005	BSIZE2005	BSIZE2005	BSIZE2005	BSIZE2005	INDEP2005	INDEP2005	INDEP2005	INDEP2005	INDEP2005	INDEP2005
BSIZE2005	1											
BSIZE2006	.872**	1										
BSIZE2007	.822**	.890**	1									
BSIZE2008	.750**	.821**	.888**	1								
BSIZE2009	.735**	.778**	.815**	.889**	1							
BSIZE2010	.677**	.704**	.747**	.794**	.867**	1						
INDEP2005	.053	.084	.090	.100	.125*	.103	1					
INDEP 2006	.059	.044	.031	.075	.105	.080	.745**	1				
INDEP 2007	.093	.075	.046	.062	.101	.098	.602**	.752**	1			
INDEP 2008	.114*	.111*	.085	.053	.097	.105	.513**	.630**	.752**	1		
INDEP 2009	.139*	.136*	.110*	.077	.107*	.108*	.509**	.598**	.677**	.738**	1	
INDEP 2010	.143*	.198**	.163**	.139**	.186**	.099	.446**	.454**	.540**	.590**	.723**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix Ch. 4.1.11 Correlation between Independent Directors and Debt

	INDEP 2005	INDEP 2006	INDEP 2007	INDEP 2008	INDEP 2009	INDEP 2010	DEBT 2005	DEBT 2006	DEBT 2007	DEBT 2008	DEBT 2009	DEBT 2010
INDEP 2005	1											
INDEP 2006	.745**	1										
INDEP 2007	.602**	.752**	1									
INDEP 2008	.513**	.630**	.752**	1								
INDEP 2009	.509**	.598**	.677**	.738**	1							
INDEP 2010	.446**	.454**	.540**	.590**	.723**	1						
DEBT2005	.088	.093	.024	.073	.039	-.036	1					
DEBT2006	.048	.033	-.009	.011	-.017	-.047	.728**	1				
DEBT2007	.036	.006	.009	.016	.000	-.003	.646**	.818**	1			
DEBT2008	.043	.027	.024	.048	.053	.042	.576**	.776**	.856**	1		
DEBT2009	.042	.058	.064	.065	.052	.027	.583**	.771**	.815**	.918**	1	
DEBT2010	.037	.062	.062	.062	.056	.047	.589**	.736**	.785**	.859**	.921**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix Ch. 4.1.12 Correlation between Independent Directors and Dividend Payout

	INDEP 2005	INDEP 2006	INDEP 2007	INDEP 2008	INDEP 2009	INDEP 2010	Dpout 2005	Dpout 2006	Dpout 2007	Dpout 2008	Dpout 2009	Dpout 2010
INDEP 2005	1											
INDEP 2006	.745**	1										
INDEP 2007	.602**	.752**	1									
INDEP 2008	.513**	.630**	.752**	1								
INDEP 2009	.509**	.598**	.677**	.738**	1							
INDEP 2010	.446**	.454**	.540**	.590**	.723**	1						
Dpout 2005	-.031	-.032	.009	.089	.000	-.037	1					
Dpout 2006	-.046	-.133*	-.079	.001	-.056	-.075	.195**	1				
Dpout 2007	-.072	-.076	-.006	-.002	-.033	-.007	-.030	.016	1			
Dpout 2008	-.017	.050	.048	.042	.010	-.045	.035	.020	.029	1		
Dpout 2009	-.047	-.032	.003	-.055	-.074	-.037	.031	.115*	-.015	.013	1	
Dpout 2010	.108	.069	.014	.024	.034	.025	.018	-.056	-.021	.004	-.025	1
**. Correlation is significant at the 0.01 level (2-tailed).												
*. Correlation is significant at the 0.05 level (2-tailed).												

Appendix Ch. 4.1.13 Correlation between Independent Directors and Firm Size

	INDEP 2005	INDEP 2006	INDEP 2007	INDEP 2008	INDEP 2009	INDEP 2010	LGFMSize2005	LGFSize2006	LGFSize2007	LGFSize2008	LGFSize2009	LGFSize2010
INDEP 2005	1											
INDEP 2006	.745**	1										
INDEP 2007	.602**	.752**	1									
INDEP 2008	.513**	.630**	.752**	1								
INDEP 2009	.509**	.598**	.677**	.738**	1							
INDEP 2010	.446**	.454**	.540**	.590**	.723**	1						
LGFSize2005	.321**	.327**	.350**	.358**	.369**	.349**	1					
LGFSize2006	.317**	.332**	.359**	.361**	.373**	.345**	.984**	1				
LGFSize2007	.334**	.351**	.352**	.344**	.360**	.347**	.966**	.983**	1			
LGFSize2008	.334**	.344**	.349**	.346**	.365**	.365**	.952**	.972**	.988**	1		
LGFSize2009	.344**	.338**	.346**	.358**	.373**	.377**	.947**	.968**	.979**	.993**	1	
LGFSize2010	.348**	.341**	.342**	.360**	.373**	.383**	.935**	.959**	.968**	.986**	.994**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix Ch. 4.1.14 Correlation between Independent Directors and Directors' Ownership

	INDEP2005	INDEP2006	INDEP2007	INDEP2008	INDEP2009	INDEP2010	DIRW2005	DIRW2006	DIRW2007	DIRW2008	DIRW2009	DIRW2010
INDEP2005	1											
INDEP2006	.745**	1										
INDEP2007	.602**	.752**	1									
INDEP2008	.513**	.630**	.752**	1								
INDEP2009	.509**	.598**	.677**	.738**	1							
INDEP2010	.446**	.454**	.540**	.590**	.723**	1						
DIRW2005	-.230**	-.234**	-.164**	-.145**	-.183**	-.177**	1					
DIRW2006	-.216**	-.218**	-.159**	-.159**	-.190**	-.170**	.964**	1				
DIRW2007	-.236**	-.203**	-.141**	-.157**	-.201**	-.157**	.887**	.931**	1			
DIRW2008	-.187**	-.161**	-.105*	-.145**	-.187**	-.158**	.849**	.900**	.978**	1		
DIRW2009	-.196**	-.133*	-.108*	-.129*	-.182**	-.168**	.765**	.820**	.914**	.923**	1	
DIRW2010	-.190**	-.134*	-.101	-.122*	-.185**	-.176**	.730**	.788**	.895**	.904**	.985**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix Ch. 4.1.15 Correlation between Independent Directors and Executive Remuneration

	INDEP 2005	INDEP 2005	INDEP 2005	INDEP 2005	INDEP 2005	INDEP 2005	LGEXECRE M2005	LGEXECRE M2006	LGEXECRE M2007	LGEXECRE M2008	LGEXECRE M2009	LGEXECRE M2010
INDEP2005	1											
INDEP2006	.745**	1										
INDEP2007	.602**	.752**	1									
INDEP2008	.513**	.630**	.752**	1								
INDEP2009	.509**	.598**	.677**	.738**	1							
INDEP2010	.446**	.454**	.540**	.590**	.723**	1						
LGEXECRE M2005	.102	.066	.098	.082	.121*	.111*	1					
LGEXECRE M2006	.089	.022	.053	.065	.083	.092	.918**	1				
LGEXECRE M2007	.085	.030	.050	.077	.093	.131*	.877**	.900**	1			
LGEXECRE M2008	.080	.011	.015	.023	.061	.112*	.844**	.867**	.903**	1		
LGEXECRE M2009	.058	.024	.017	.031	.044	.119*	.824**	.837**	.861**	.908**	1	
LGEXECRE M2010	.085	.030	-.008	.003	.017	.093	.817**	.827**	.848**	.886**	.926**	1
**. Correlation is significant at the 0.01 level (2-tailed).												
*. Correlation is significant at the 0.05 level (2-tailed).												

Appendix Ch. 4.1.16 Correlation between Directors' Ownership and Executive Remuneration

	DIRW2005	DIRW2006	DIRW2007	DIRW2008	DIRW2009	DIRW2010	LEXECREM2005	LEXECREM2006	LEXECREM2007	LEXECREM2008	LEXECREM2009	LEXECREM2010
DIRW2005	1											
DIRW2006	.964**	1										
DIRW2007	.887**	.931**	1									
DIRW2008	.849**	.900**	.978**	1								
DIRW2009	.765**	.820**	.914**	.923**	1							
DIRW2010	.730**	.788**	.895**	.904**	.985**	1						
LEXECREM2005	-.216**	-.193**	-.269**	-.261**	-.257**	-.264**	1					
LEXECREM2006	-.128*	-.144**	-.270**	-.262**	-.260**	-.273**	.918**	1				
LEXECREM2007	-.143**	-.142**	-.201**	-.202**	-.200**	-.200**	.877**	.900**	1			
LEXECREM2008	-.137*	-.141**	-.228**	-.233**	-.231**	-.237**	.844**	.867**	.903**	1		
LEXECREM2009	-.135*	-.126*	-.217**	-.239**	-.244**	-.242**	.824**	.837**	.861**	.908**	1	
LEXECREM2010	-.199**	-.175**	-.227**	-.244**	-.242**	-.232**	.817**	.827**	.848**	.886**	.926**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix Ch. 4.1.17 Correlation between Board size and Debt

	BSIZE2005	BSIZE2006	BSIZE2007	BSIZE2008	BSIZE2009	BSIZE2010	DEBT 2005	DEBT 2006	DEBT 2007	DEBT 2008	DEBT 2009	DEBT 2010
BSIZE2005	1											
BSIZE2006	.872**	1										
BSIZE2007	.822**	.890**	1									
BSIZE2008	.750**	.821**	.888**	1								
BSIZE2009	.735**	.778**	.815**	.889**	1							
BSIZE2010	.677**	.704**	.747**	.794**	.867**	1						
DEBT 2005	.115*	.074	.052	.086	.077	.040	1					
DEBT 2006	.109*	.071	.052	.093	.099	.058	.728**	1				
DEBT 2007	.140*	.111*	.120*	.146**	.143**	.108*	.646**	.818**	1			
DEBT 2008	.134*	.122*	.128*	.155**	.125*	.104	.576**	.776**	.856**	1		
DEBT 2009	.158**	.131*	.116*	.152**	.130*	.096	.583**	.771**	.815**	.918**	1	
DEBT 2010	.138*	.117*	.109*	.138*	.133*	.085	.589**	.736**	.785**	.859**	.921**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix Ch. 4.1.18 Correlation between Board size and Directors' Ownership

	BSIZE2005	BSIZE2006	BSIZE2007	BSIZE2008	BSIZE2009	BSIZE2010	DIRW2005	DIRW2006	DIRW2007	DIRW2008	DIRW2009	DIRW2010
BSIZE2005	1											
BSIZE2006	.872**	1										
BSIZE2007	.822**	.890**	1									
BSIZE2008	.750**	.821**	.888**	1								
BSIZE2009	.735**	.778**	.815**	.889**	1							
BSIZE2010	.677**	.704**	.747**	.794**	.867**	1						
DIRW2005	-.143**	-.161**	-.136*	-.098	-.141*	-.176**	1					
DIRW2006	-.119*	-.144**	-.114*	-.074	-.108*	-.137*	.964**	1				
DIRW2007	-.160**	-.159**	-.171**	-.134*	-.142**	-.157**	.887**	.931**	1			
DIRW2008	-.154**	-.152**	-.169**	-.124*	-.133*	-.152**	.849**	.900**	.978**	1		
DIRW2009	-.144**	-.150**	-.168**	-.137**	-.137**	-.142**	.765**	.820**	.914**	.923**	1	
DIRW2010	-.156**	-.175**	-.190**	-.163**	-.142**	-.123*	.730**	.788**	.895**	.904**	.985**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix Ch. 4.1.19 Correlation between Board size and Executive Remuneration

	BSIZE2005	BSIZE2006	BSIZE2007	BSIZE2008	BSIZE2009	BSIZE2010	LEXECREM2005	LEXECREM2006	LEXECREM2007	LEXECREM2008	LEXECREM2009	LEXECREM2010
BSIZE2005	1											
BSIZE2006	.872**	1										
BSIZE2007	.822**	.890**	1									
BSIZE2008	.750**	.821**	.888**	1								
BSIZE2009	.735**	.778**	.815**	.889**	1							
BSIZE2010	.677**	.704**	.747**	.794**	.867**	1						
LEXECREM2005	.666**	.644**	.630**	.581**	.596**	.570**	1					
LEXECREM2006	.692**	.694**	.666**	.626**	.620**	.583**	.918**	1				
LEXECREM2007	.662**	.688**	.646**	.593**	.601**	.567**	.877**	.900**	1			
LEXECREM2008	.636**	.676**	.651**	.616**	.625**	.602**	.844**	.867**	.903**	1		
LEXECREM2009	.630**	.659**	.658**	.648**	.661**	.625**	.824**	.837**	.861**	.908**	1	
LEXECREM2010	.628**	.640**	.627**	.615**	.645**	.633**	.817**	.827**	.848**	.886**	.926**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix Ch. 4.1.20 Correlation between Board size and Firm Size

	BSIZE2005	BSIZE2006	BSIZE2007	BSIZE2008	BSIZE2009	BSIZE2010	LGFSIZE2005	LGFSIZE2006	LGFSIZE2007	LGFSIZE2008	LGFSIZE2009	LGFSIZE2010
BSIZE2005	1											
BSIZE2006	.872**	1										
BSIZE2007	.822**	.890**	1									
BSIZE2008	.750**	.821**	.888**	1								
BSIZE2009	.735**	.778**	.815**	.889**	1							
BrdSize2010	.677**	.704**	.747**	.794**	.867**	1						
LGFSIZE2005	.650**	.657**	.626**	.592**	.619**	.584**	1					
LGFSIZE2006	.633**	.648**	.620**	.593**	.621**	.595**	.984**	1				
LGFSIZE2007	.630**	.655**	.638**	.624**	.650**	.621**	.966**	.983**	1			
LGFSIZE2008	.616**	.648**	.632**	.625**	.653**	.630**	.952**	.972**	.988**	1		
LGFSIZE2009	.610**	.637**	.622**	.618**	.653**	.630**	.947**	.968**	.979**	.993**	1	
LGFSIZE2010	.599**	.626**	.617**	.615**	.654**	.631**	.935**	.959**	.968**	.986**	.994**	1
**. Correlation is significant at the 0.01 level (2-tailed).												

Appendix Ch. 4.2

Correlation between Independent Variables and Error Term 2SLS with

Appendix Ch.4.2.1 Correlation between Independent Variables and Error Term 2SLS with IVs Lag of Endogenous Variables (INDEP and BSIZE)

	BSIZE2007	INDEP2007	Audit 2007	ROLE2007	DIRW2007	LGEXCREM2007	DEBT2007	DPOUT2007	ET2006
BSIZE2007	1								
INDEP2007	.046	1							
Audit 2007	-.028	-.035	1						
ROLE2007	-.077	.012	-.161**	1					
DIRW2007	-.171**	-.141**	.028	-.035	1				
LGEXCREM2007	.646**	.050	-.137**	-.014	-.201**	1			
DEBT2007	.120*	.009	.018	.082	-.133*	.189**	1		
DPOUT2007	.638**	.352**	-.082	-.017	-.249**	.708**	.275**	1	
ET2006	.112*	.016	-.294**	.275**	.238**	.152**	.101	.064	1
**. Correlation is significant at the 0.01 level (2-tailed).									
*. Correlation is significant at the 0.05 level (2-tailed).									

	BSIZE2008	INDEP2008	Audit 2008	ROLE2008	DIREW2008	LGEXCREM2008	DEBT 2008	Dpout 2008	LGFMSize2008	ET2007
BSIZE2008	1									
INDEP2008	.053	1								
Audit 2008	-.096	-.167**	1							
ROLE2008	-.034	.071	-.253**	1						
DIREW2008	-.124*	-.145**	.026	-.063	1					
LGEXCREM2008	.616**	.023	-.083	.016	-.233**	1				
DEBT 2008	.155**	.048	.021	.034	-.086	.107*	1			
Dpout 2008	.050	.042	.006	.002	-.029	.074	-.008	1		
LGFMSize2008	.625**	.346**	-.120*	.006	-.231**	.699**	.285**	-.002	1	
ET2007	.086	-.028	-.292**	.304**	.203**	.106	.037	.009	.026	1
*. Correlation is significant at the 0.05 level (2-tailed).										
**. Correlation is significant at the 0.01 level (2-tailed).										

	BZISE2009	INDEP2009	AUDIT 2009	ROLE 2009	DIRW2009	LGEXCREM2009	DEBT2009	Dpout 2009	LGFSIZE2009	ET2008
BZISE2009	1									
INDEP2009	.107*	1								
AUDIT 2009	-.134*	-.172**	1							
ROLE 2009	-.050	.056	-.110*	1						
DIRW2009	-.137**	-.182**	.052	-.072	1					
LGEXCREM2009	.661**	.044	-.160**	-.044	-.244**	1				
DEBT2009	.130*	.052	-.010	-.039	-.041	.081	1			
Dpout 2009	-.080	-.074	-.013	-.002	.043	-.022	-.069	1		
LGFSIZE2009	.653**	.373**	-.173**	-.002	-.248**	.709**	.260**	-.044	1	
ET2008	.185**	.033	-.239**	.371**	.105	.141**	.093	.008	.096	1
*. Correlation is significant at the 0.05 level (2-tailed).										
**. Correlation is significant at the 0.01 level (2-tailed).										

	BSIZE2010	INDEP2010	Audit 2010	ROLE 2010	DIREW2010	LGEXCREM2010	DEBT 2010	Dpout 2010	LGFSize2010	ET2009
BSIZE2010	1									
INDEP2010	.099	1								
Audit 2010	.010	-.036	1							
ROLE 2010	-.073	.029	.043	1						
DIREW2010	-.123*	-.176**	.000	-.062	1					
LGEXCREM2010	.633**	.093	-.037	-.019	-.232**	1				
DEBT 2010	.085	.047	.028	-.083	-.069	.130*	1			
Dpout 2010	-.034	.025	.035	-.018	-.023	-.077	.055	1		
LGFSize2010	.631**	.383**	-.071	-.015	-.234**	.737**	.261**	-.011	1	
ET2009	.095	.076	-.127*	.348**	.109	.120*	.098	-.025	.094	1
*. Correlation is significant at the 0.05 level (2-tailed).										
**. Correlation is significant at the 0.01 level (2-tailed).										

Appendix Ch.4.2.2 Correlation between instrumental variables and error term 2SLS with IVs lag of endogenous variables (BSIZE AND INDEP)

	BSIZE2005	INDEP2005	Audit 2006	ROLE 2006	DIRW2006	LEXCGREM2006	DEBT2006	Dpout 2006	LGFSize2006	ET2005
BSIZE2005	1									
INDEP2005	.053	1								
Audit 2006	-.003	-.033	1							
ROLE 2006	-.017	.022	-.092	1						
DIRW2006	-.119*	-.216**	.038	.053	1					
LEXCGREM2006	.692**	.089	-.094	.032	-.144**	1				
DEBT2006	.109*	.048	.057	.107	-.141**	.164**	1			
Dpout 2006	-.042	-.046	.016	-.020	.188**	-.012	.012	1		
LGFSize2006	.633**	.317**	.010	.016	-.221**	.692**	.243**	-.041	1	
ET2005	.000	.000	-.441**	.311**	.205**	.148*	.019	.108	.044	1
*. Correlation is significant at the 0.05 level (2-tailed).										
**. Correlation is significant at the 0.01 level (2-tailed).										

	BSIZE2006	BINDR2006	AUDIT 2007 (Dummy Variable)	ROLE 2007	DIRW2007	LGEXCREM2007	DEBT 2007	Dpout 2007	LGFSize2007	ET2006
BSIZE2006	1									
BINDR2006	.044	1								
AUDIT 2007 (Dummy Variable)	-.052	-.054	1							
ROLE 2007	-.043	.029	-.161**	1						
DIRW2007	-.159**	-.203**	.028	-.035	1					
LGEXCREM2007	.688**	.030	-.137**	-.014	-.201**	1				
DEBT 2007	.111*	.006	.018	.082	-.133*	.189**	1			
Dpout 2007	-.092	-.076	.009	-.010	.125*	-.108*	-.023	1		
LGFSize2007	.655**	.351**	-.082	-.017	-.249**	.708**	.275**	-.059	1	
ET2006	.000	.000	-.294**	.275**	.238**	.152**	.101	.071	.064	1
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

	BSIZE2007	INDEP2007	AUDIT 2008	ROLE 2008	DIRW2008	LGEXCREM2008	DEBT 2008	Dpout 2008	LGFSize2008	ET2007
BSIZE2007	1									
INDEP2007	.046	1								
AUDIT 2008	-.074	-.137**	1							
ROLE 2008	-.075	.043	-.253**	1						
DIRW2008	-.169**	-.105*	.026	-.063	1					
LGEXCREM2008	.651**	.015	-.083	.016	-.233**	1				
DEBT 2008	.128*	.024	.021	.034	-.086	.107*	1			
Dpout 2008	.046	.048	.006	.002	-.029	.074	-.008	1		
LGFSize2008	.632**	.349**	-.120*	.006	-.231**	.699**	.285**	-.002	1	
ET2007	.000	.000	-.292**	.304**	.203**	.106	.037	.009	.026	1
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

	BSIZE2008	INDEP2008	AUDIT 2009	ROLE 2009	DIRW2009	LGEXCREM2009	DEBT 2009	Dpout 2009	LGFSize2009	ET2008
BSIZE2008	1									
INDEP2008	.053	1								
AUDIT 2009 (Dummy Variable)	-.166**	-.087	1							
ROLE 2009	-.070	.061	-.110*	1						
DIRW2009	-.137**	-.129*	.052	-.072	1					
LGEXCREM2009	.648**	.031	-.160**	-.044	-.244**	1				
DEBT 2009	.152**	.065	-.010	-.039	-.041	.081	1			
Dpout 2009	-.055	-.055	-.013	-.002	.043	-.022	-.069	1		
LGFSize2009	.618**	.358**	-.173**	-.002	-.248**	.709**	.260**	-.044	1	
ET2008	.000	.000	-.239**	.371**	.105	.141**	.093	.008	.096	1
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

	BSIZE2009	INDEP2009	AUDIT 2010	ROLE 2010	DIRW2010	LGEXCREM2010	DEBT 2010	Dpout 2010	LGFSize2010	ET2009
BSIZE2009	1									
INDEP2009	.107*	1								
AUDIT 2010	-.009	-.041	1							
ROLE 2010	-.023	.046	.043	1						
DIRW2010	-.142**	-.185**	.000	-.062	1					
LGEXCREM2010	.645**	.017	-.037	-.019	-.232**	1				
DEBT 2010	.133*	.056	.028	-.083	-.069	.130*	1			
Dpout 2010	-.005	.034	.035	-.018	-.023	-.077	.055	1		
LGFSize2010	.654**	.373**	-.071	-.015	-.234**	.737**	.261**	-.011	1	
ET2009	.000	.000	-.127*	.348**	.109	.120*	.098	-.025	.094	1
*. Correlation is significant at the 0.05 level (2-tailed).										
**. Correlation is significant at the 0.01 level (2-tailed).										

Appendix CH. 4.3 Step by step 2SLS

Results step by step OLS for instrumental variables (LAG INDEP AND LAG BSIZE), First OLS equation is;

The first OLS regression is;

$INDEPn = INDEP_{n-1} + BSIZE_n + DIRW_n, + EXCR_n + DEBT_n + DPOUT_n + FSIZE_n + IC$

Second OLS equation is;

$Q = \text{predicted INDEP} + BSIZEn + DIRW_n + EXCR_n + DEBT_n + DPOUT_n + FSIZE_n + IC$

Result of the second OLS equation.

Model	Dependent variables Tobin's Q				
years	2006	2007	2008	2009	2010
Observation	299	323	335	326	307
Constant	-8.431***	-7.642***	-6.163**	-7.272***	-5.616**
Predicted INDEP	0.021**	0.02**	0.02**	0.018*	0.02**
BSIZE	0.021	0.068*	0.054*	0.044	0.06*
ROLE	0.44*	0.5*	0.246	0.319	0.306
AUD	-0.047	0.351	-0.634	-0.374	0.009
DIRW	0.005	0.007	-0.003	0.01	0.011*
LGEXCREM	0.672***	0.543***	0.509***	0.534***	0.389**
DEBT	0.001	0.004	0.006*	0.002	-0.002
DPOUT	0.026	-0.006	-0.012	0.053*	0.109*
FSIZE	-0.409***	-0.365***	-0.311***	-0.24***	-0.227***
Industry: Cons. Goods	0.269	0.205	-0.076	0.074	0.191
Industry: Cons. Serv.	0.106	0.199	0.052	0.126	-0.185
Industry: Health Care	0.001	-0.023	-0.163	-0.2	-0.222
Industry: Industrials	0.15	0.242	0.003	0.107	-0.129
Industry: Oil & Gas	-0.019	0.016	-0.14	-0.035	-0.088
Industry: Technology	0.03	-0.099	-0.255	-0.164	-0.07
Industry: Utilities	0.21	-0.048	-0.229	-0.199	-0.238
R-sq	0.238	0.151	0.117	0.095	0.089
Adj. R-sq	0.195	0.106	0.073	0.048	0.039
F	5.519***	3.442***	2.424**	2.076**	1.925**

The dependent variable is measured by Tobin's Q, which is measured by (Market Cap + Liabilities + Preferred Equity + Minority Interest) / Total Assets. The independent variables include DIRW: Director ownership= the total shareholdings of directors over the total number of shares, INDEP: Independent directors= Proportion of non-executive directors to total number of directors; BSIZE: board size = Total number of directors on the board; AUD: Audit Committee = Dummy variable; 1 if there is an audit committee,0 otherwise; ROLE: role duality = Dummy variable—1 if the chairman is also the CEO, 0 otherwise; EXCREM: Executive Remuneration= Natural logarithm of total board remuneration (both remuneration executive and non-executive); DEBT: total debt = Total debt /total assets; DPOUT: dividend payout = Dividend per share/earnings per share; FSIZE: firm size = the natural logarithm of total assets. All OLS regression includes seven dummy variables for each of the eight industries based on Industry Classification Benchmark (ICB). ***, **, * denotes significant at 1%, 5% and 10% level respectively.

The same procedure is applied to BSIZE.OLS equation for BSIZE is as follows:

$BSIZEn = INDEP_n + BSIZE_{n-1} + DIRW_n, + EXCR_n + DEBT_n + DPOUT_n + FSIZE_n + IC$

Second OLS equation is;

$Q = INDEP_n$ +Predicted BSIZEn + $DIRW_n + EXCR_n + DEBT_n + DPOUT_n + FSIZE_n + IC$

Result of the second OLS equation:

Model	Dependent variables Tobin's Q				
Years	**2006**	**2007**	**2008**	**2009**	**2010**
Observation	299	323	335	326	307
Constant	-8.169***	-7.376***	-5.075**	-6.586**	-5.403**
INDEP	0.01*	0.019**	0.016**	0.011*	0.012*
BSIZE	-0.014	0.074	0.101	0.039	0.028
ROLE	0.471*	0.507*	0.28	0.326	0.291
AUD	-0.045	0.336	-0.714	-0.463	0.015
DIRW	0.003	0.007	-0.004	0.009	0.01*
LGEXCREM	0.692***	0.526***	0.431***	0.516***	0.404**
DEBT	0	0.004	0.005	0.002*	-0.002
DPOUT	0.019	-0.007	-0.012	0.051	0.112*
FSIZE	-0.352***	-0.36***	-0.319***	-0.208***	0.18**
Industry: Cons. Goods	0.305	0.205	-0.049	0.066	0.125
Industry: Cons. Serv.	0.133	0.203	0.079	0.114	-0.23
Industry: Health Care	-0.007	-0.023	-0.143	-0.213	-0.278
Industry: Industrials	0.179	0.236	-0.017	0.102	-0.136
Industry: Oil & Gas	-0.021	0.018	-0.107	-0.036	-0.15
Industry: Technology	0.022	-0.102	-0.195	-0.188	-0.145
Industry: Utilities	0.216	-0.047	-0.208	-0.211	-0.295
R-sq	0.226	0.169	0.122	0.093	0.089
Adj. R-sq	0.182	0.126	0.078	0.046	0.039
F	5.169***	3.915***	2.778**	1.993**	1.774**

The dependent variable is measured by Tobin's Q, which is measured by (Market Cap + Liabilities + Preferred Equity + Minority Interest) / Total Assets. The independent variables include DIRW: Director ownership= the total shareholdings of directors over the total number of shares, INDEP: Independent directors= Proportion of non-executive directors to total number of directors; BSIZE: board size = Total number of directors on the board; AUD: Audit Committee = Dummy variable; 1 if there is an audit committee,0 otherwise; ROLE: role duality = Dummy variable—1 if the chairman is also the CEO, 0 otherwise; EXCREM: Executive Remuneration= Natural logarithm of total board remuneration (both remuneration executive and non-executive); DEBT: total debt = Total debt /total assets; DPOUT: dividend payout = Dividend per share/earnings per share; FSIZE: firm size = Natural logarithm of total assets. All OLS regression includes seven dummy variables for each of the eight industries based on Industry Classification Benchmark (ICB). ***, **, * denotes significant at 1%, 5% and 10% level respectively.

Then the predicted INDEP and the predicted BSIZE was regressed together with other exogenous variables ($DIRW_n$ + $EXCR_n$+ $DEBT_n$+ $DPOUT_n$+ $FSIZE_n$ + IC), using OLS, that is:

Q= predicted INDEP+ predicted BSIZE+ $DIRW_n$ + $EXCR_n$+ $DEBT_n$+ $DPOUT_n$+ $FSIZE_n$ + IC

The result of OLS is similar to the result produced by using 2SLS in the SPSS.

Model	Dependent variables Tobin's Q				
Years	2006	2007	2008	2009	2010
Observation	299	323	335	326	307
Constant	-8.615***	-7.556***	-5.819	-7.261**	-5.765**
Predicted INDEP	0.02**	0.02**	0.022**	0.018*	0.019*
Predicted BSIZE	0.007	0.07*	0.108**	0.045	0.047
ROLE	0.441*	0.502*	0.268	0.321	0.297
AUD	-0.04	0.346	-0.494	-0.37	0.016
DIRW	0.005	0.007	-0.003	0.01	0.011
LGEXCREM	0.692***	0.538***	0.455***	0.541***	0.405**
DEBT	0	0.004	0.005*	0.002*	-0.002
DPOUT	0.026	-0.007	-0.014	0.053	0.109*
FSIZE	-0.399***	-0.363***	-0.351***	-0.24***	-0.219***
Industry: Cons. Goods	0.282	0.205	-0.088	0.076	0.187
Industry: Cons. Serv.	0.109	0.2	0.064	0.129	-0.184
Industry: Health Care	0.001	-0.023	-0.167	-0.2	-0.222
Industry: Industrials	0.165	0.24	-0.047	0.106	-0.12
Industry: Oil & Gas	-0.018	0.017	-0.129	-0.033	-0.087
Industry: Technology	0.024	-0.1	-0.218	-0.162	-0.075
Industry: Utilities	0.211	-0.048	-0.226	-0.198	-0.238
R-sq	0.237	0.147	0.12	0.095	0.089
Adj. R-sq	0.193	0.102	0.076	0.049	0.039
F	5.480***	3.305***	2.729***	2.043***	1.784***

The dependent variable is measured by Tobin's Q, which is measured by (Market Cap + Liabilities + Preferred Equity + Minority Interest) / Total Assets. The independent variables include DIRW: Director ownership= the total shareholdings of directors over the total number of shares, INDEP: Independent directors= Proportion of non-executive directors to total number of directors; BSIZE: board size = Total number of directors on the board; AUD: Audit Committee = Dummy variable; 1 if there is an audit committee,0 otherwise; ROLE: role duality = Dummy variable—1 if the chairman is also the CEO, 0 otherwise; EXCREM: Executive Remuneration= Natural logarithm of total board remuneration (both remuneration executive and non-executive); DEBT: total debt = Total debt /total assets; DPOUT: dividend payout = Dividend per share/earnings per share; FSIZE: firm size = The natural logarithm of total assets. All OLS regression includes seven dummy variables for each of the eight industries based on Industry Classification Benchmark (ICB). ***, **, * denotes significant at 1%, 5% and 10% level respectively.

FORM UPR16

7 Research Ethics Review Checklist

University of Portsmouth

8 Please complete and return the form to Research Section, Quality Management Division, Academic Registry, University House, with your thesis, prior to examination

9

Postgraduate Research Student (PGRS) Information		**Student ID:**	**347606**
Candidate Name:	**Ali Farhat**		
Department:	**Accounting and Finance**	**First Supervisor:**	**Richard Trafford**
Start Date: (or progression date for Prof Doc students)	**October 2008**		

Study Mode and Route:	Part-time ❑	MPhil ❑	Integrated Doctorate (NewRoute) ❑
	Full-time X	MD ❑	Prof Doc (PD) ❑
		PhD X	

Title of Thesis:	Corporate governance and firm performance: the case of UK
Thesis Word Count: (excluding ancillary data)	90,000 Words

If you are unsure about any of the following, please contact the local representative on your Faculty Ethics Committee for advice. Please note that it is your responsibility to follow the University's Ethics Policy and any relevant University, academic or professional guidelines in the conduct of your study

Although the Ethics Committee may have given your study a favourable opinion, the final responsibility for the ethical conduct of this work lies with the researcher(s).

10

UKRIO Finished Research Checklist:
(If you would like to know more about the checklist, please see your Faculty or Departmental Ethics Committee rep or see the online version of the full checklist at: http://www.ukrio.org/what-we-do/code-of-practice-for-research/)

a) Have all of your research and findings been reported accurately, honestly and within a reasonable time frame?	**YES**
b) Have all contributions to knowledge been acknowledged?	**YES**
c) Have you complied with all agreements relating to intellectual property, publication and authorship?	**YES**

d) Has your research data been retained in a secure and accessible form and will it remain so for the required duration?	**YES**
e) Does your research comply with all legal, ethical, and contractual requirements?	**YES**

*Delete as appropriate

Candidate Statement:	
I have considered the ethical dimensions of the above named research project, and have successfully obtained the necessary ethical approval(s)	
Ethical review number(s) from Faculty Ethics Committee (or from NRES/SCREC):	
Signed: Ali Farhat ***(Student)***	**Date:5-02-2015**
If you have *not* submitted your work for ethical review, and/or you have answered 'No' to one or more of questions a) to e), please explain why this is so:	
Signed: ***(Student) Ali Farhat***	**Date: 5-02-2015**